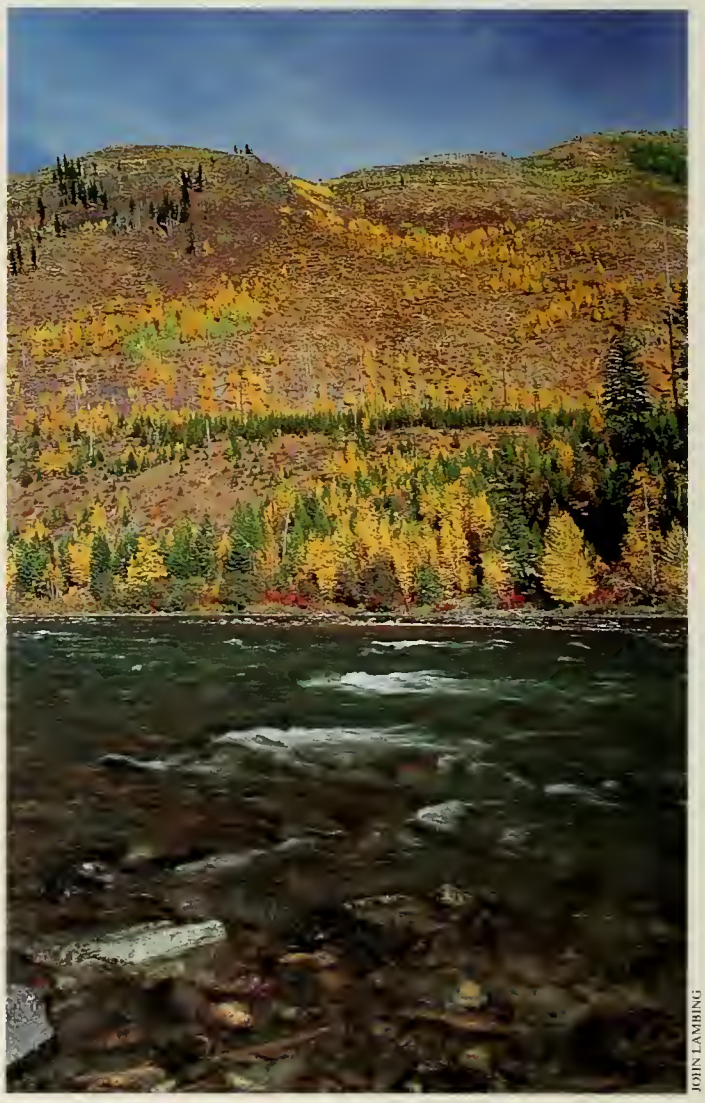
May/June 1994 $2.00

MONTANA OUTDOORS

Our Point of View



JOHN LAMBING

Over a decade ago, I had the good fortune to lead some important projects designed to mitigate impacts on fish and wildlife in northwestern Montana. We had people working from the Kootenai to Hungry Horse, from Flathead Lake to the Bitterroot.

One day we had a gathering to share stories and enjoy good company. One of the crew, Wendy, made up T-shirts signifying everyone's status in the group based on the fish we knew and loved. They ranged from suckers to cutthroat and were accepted with great zeal. I was given one entitled "Chief Bull Trout." Now, one could imagine the title was meant to signify the status of this large, magnificent creature—the bull trout, the king of fish! Or, one could imagine it suggested an ability to prevail over another's sense of better judgment with tales of exaggerated proportion. I, of course, knew immediately what it signified.

Today, though, when I reflect on that moment and those times, I wonder, what does fate hold in store for the bull trout? They are voracious eaters and can grow to three feet in length. They are found only west of the Continental Divide, where they inhabit majestic rivers like the Flathead, Kootenai, and Clark Fork. Despite their great beauty, these rivers don't provide an easy living for bull trout.

Young bull trout migrate from small streams long distances in larger rivers to avoid predators and find food in lakes like Flathead and Pend Oreille. There they live out their lives, with only periodic summer journeys to the spawning tributaries where they were born. Female bull trout undulate their bodies using the force of water to dig more than a foot into the gravel to lay their eggs. Their nests are the size of a pickup truck bed. So exhausting is the journey, they cannot spawn every year.

The Salish Indians once fished for bull trout on the fish's spawning run upriver near places like present-day Missoula. They referred to this area as *ntay*, and one of their names for these fish was *tay*. Bull trout have gone by many other names over the years—salmon trout, Dolly Varden, and even "cannibal." Years ago, a bounty was placed on their heads in parts of their range, because they ate more desirable fish.

Then dams blocked their migration routes. Other exotic fish and aquatic life were introduced with good intentions, but some ended up competing with bull trout. Brook trout began to hybridize with bull trout, leaving sterile offspring. Some of the bull trout's spawning streams were damaged as well.

This king of fish adapted to life in the frigid streams at the feet of melting glaciers, growing faster in cold water than warm. They adapted to the sterile waters, migrating from stream to river to lake and back again. They even survived a bounty. But now they need our help.

Can we as a society coexist with bull trout? Can we act now to restore this species?

You don't have to get the answer from "Chief Bull Trout." The people of western Montana think we can do it. And so do we.

Patrick J. Graham, Director
Montana Department of Fish, Wildlife & Parks

COURTESY OF THE BILLINGS GAZETTE | LARRY MAYER PHOTO

Each year in September, Chief Plenty Coups State Park hosts a parade of school children in native dress to help celebrate Native American Awareness Week (page 22).

State of Montana
Marc Racicot/Governor

Fish, Wildlife & Parks Commission
Stan Meyer/Chairman
Jim Rector/Vice Chairman
Elaine Allestad
Charles Decker
Dave Simpson

Department of Fish, Wildlife & Parks
Patrick Graham/Director
Bob Martinka/Chief of Staff Operations
Dave Mott/Administration and Finance

Conservation Education Division
Ron Aasheim/Administrator
Vince Yannone/Assistant Administrator

Montana Outdoors Staff
Dave Books/Editor
Bev Veneziano/Art Director

Montana Outdoors (ISSN 0027-0016), the official publication of the Montana Department of Fish, Wildlife & Parks, is published bimonthly (January, March, May, July, September, and November). Contributions (manuscripts or illustrations) are welcome with the understanding that the department or the editor cannot be responsible for loss or damage. All contributions will be published at the discretion of the editor. For subscription information, phone 800/678-6668 (toll-free). Subscription rates are $7 for one year, $12.50 for two years, and $17 for three years. (Please add $3 per year for Canadian subscriptions. All other foreign subscriptions, air mail only, are $22 for one year.) Individual copies and back issues cost $2 each.

Although *Montana Outdoors* is copyrighted, permission to reprint articles is available by writing our office or phoning us at 406/444-2474.

All correspondence should be addressed: *Montana Outdoors*, Department of Fish, Wildlife & Parks, 930 West Custer Ave., P.O. Box 200701; Helena, MT 59620-0701.

©Montana Department of Fish, Wildlife & Parks, 1994. All rights reserved.

Indexed by States' Periodical Index, 1660 Smithville Road; Havre, MT 59501.

Postmaster: Send address changes to *Montana Outdoors*, Department of Fish, Wildlife & Parks, 930 West Custer Ave., P.O. Box 200701; Helena, MT 59620-0701. Second-class postage paid at Helena, MT 59620, and additional mailing offices.

MONTANA OUTDOORS

May/June 1994
Volume 25, Number 3

FEATURES

2 CRP at the Crossroads
by Dave Books
The Conservation Reserve Program has had many benefits for wildlife in the past decade, but its future is uncertain.

8 Watchable Wildlife—Bunnies by the Bunch
by Dennis Flath
Montana has eight species of rabbits and hares, but only four of them can properly be called "rabbits."

14 Further Adventures of a Travelin' Fish
by John Fraley
Because of a petition to list it under the Endangered Species Act, the bull trout is being called the Northwest's next spotted owl.

22 Lands Legacy—A Park for All People: Chief Plenty Coups State Park
by Ken Oravsky and Rich Pittsley
A great statesman's gift serves as a place where people gather in friendship to learn respect for each other's cultures.

28 Perspectives—A River of My Own
by Greg Tollefson
Growing up in Montana with a river to call your own is a matter of great good fortune.

32 Sauger Sagas and Trout Tales
by Dave Books
Montana anglers set five new fish records in 1993.

DEPARTMENTS

31 Catchall
34 From the Field
36 Readers Respond
37 Contributors

COVERS

Covers—Rabbits and hares are abundant in Montana, with most of the state home to at least one species of these prolific mammals (see "Bunnies by the Bunch" beginning on page 8). The mountain cottontail—captured for our front cover by **Erwin and Peggy Bauer**—is one of the most common and widely distributed. **Michael J. Barlow's** compelling back cover photo of an antelope fawn peering from a bed of wildflowers serves as a reminder that spring has arrived under the Big Sky.

CRP AT THE C

The good old days are here, bu

by Dave Books

ROSSROADS:

can we keep them?

TOM J. ULRICH

RICHARD MOUSEL

Lark buntings (above) and Hungarian partridge (right) are a few of the many species benefiting from CRP.

IT MAY SOUND like a first-aid program for heart attack victims, but CRP has nothing to do with cardiovascular pulmonary resuscitation. It does, however, have to do with breathing new life into roughly 40 million acres of marginal cropland by curtailing erosion, improving water quality, and reviving ailing wildlife populations. Since its inception in 1985, the Conservation Reserve Program (CRP) has quietly transformed the landscape of the northern Great Plains—so quietly, in fact, that many people don't even know what CRP is, let alone that we are in danger of losing it. That's unfortunate, since it could be argued that CRP has had a greater positive impact on wildlife in the past decade than all other state, private, and federal wildlife programs combined.

WHAT IS CRP?

Established as part of the Food Security Act (Farm Bill) of 1985 to reduce erosion, create wildlife habitat, reduce crop surpluses, and stabilize farm incomes, the Conservation Reserve Program pays farmers an annual rental fee—about $35 per acre in Montana—for taking marginal cropland out of production. Farmers who sign CRP contracts agree to idle their land for 10 years, and are required to plant desirable grasses and other permanent vegetation for the life of the contract.

The first of the CRP contracts were signed in 1986, and most acres were enrolled prior to 1988. This means that existing contracts will begin to expire in 1996, and the majority will expire by 1998. If CRP, or something like it, is not reinstated in the 1995 Farm Bill, by the year 2000 there will be virtually no more CRP—and wildlife and soil conservation will suffer as a result. The marked improvements we've seen in prairie wildlife populations, both game and nongame, will quickly be reversed.

Although the 1995 Farm Bill will not be completed until next year, the debate over its provisions is taking place in Washington right now; the key features will likely be decided in the next few months. As of this writing, the future of CRP is very much in doubt. By letting your congressional delegates know how you feel, you can play a part in determining the fate of this crucial conservation program.

WHAT HAS CRP ACCOMPLISHED?

Prior to 1985, government studies showed that the most marginal 6% of the country's cropland—land that should never have been farmed in the first place—was producing almost half (43%) of the estimated annual rate of soil erosion. As a result, we were losing upwards of 2 billion tons of topsoil to erosion every year. By restoring permanent cover on nearly 40 million acres of highly erodible land nationwide, the Conservation Reserve Program has reduced soil erosion by an estimated 675 million tons per year. In Montana, where 2.8 million acres are enrolled in CRP, the average annual soil savings has been 13 tons per acre.

Less erosion means reduced sedimentation and fewer pesticides and nutrients washing into waterways, thus lowering the costs of cleaning muddy municipal water supplies, dredging navigation channels, and clearing roadside ditches. It also means safer drinking water, healthier fisheries, and enhanced recreational opportunities—all of which boost the economic well-being of local communities.

While these soil and water conservation savings alone are impressive, the benefits to wildlife, particularly in the prairie pothole states of Minnesota, Iowa, the Dakotas, and Montana,

have been even greater. In South Dakota, for instance, the pheasant population went from a 15-year low of 1.8 million in the fall of 1986 (the first year CRP acres were planted) to a 25-year high in the fall of 1991. As a result of CRP, says outdoor writer Tony Dean, "Those who hunted pheasants in central South Dakota this past fall may have enjoyed the finest ringneck hunting in the world."

North Dakota, with just under 3 million acres of land enrolled in CRP, has also seen dramatic increases in upland bird populations. In Minnesota, annual pheasant harvest numbers have tripled, and some study areas in Iowa have shown a 10-fold increase in pheasant numbers.

According to Montana Department of Fish, Wildlife & Parks (FW&P) small game bureau chief Tom Hinz, the Montana pheasant harvest has grown from about 43,000 in 1986 to almost 121,000 in 1992, a three-fold increase. "We're seeing sharptails and pheasants in some areas of eastern Montana where there weren't any before," says Hinz. "CRP has definitely had a big impact on upland birds in Montana."

Jeff Herbert, FW&P's statewide waterfowl coordinator, believes that waterfowl populations, too, have been given a much-needed shot in the arm by the Conservation Reserve Program. "When you look at the scale of CRP," he says, "you quickly see the potential it has to affect waterfowl. There are about 12 million acres of CRP in the prairie pothole region alone—that's four times the total of all state and federal wildlife lands in the region. In North Dakota, South Dakota, and Montana, we feel CRP lands may be contributing as many as a million additional ducks to the fall flight each year."

According to Herbert, state and federal wetland restoration and habitat enhancement programs dovetail nicely with CRP. "To bring back prairie-nesting ducks, we need the right combination of wetland habitat and upland nesting cover. Where nesting cover is limited, we get high rates of predation and low nest success. But with large blocks of CRP adjacent to wetlands, we're seeing much higher nesting success—often 20 to 50 percent in Montana—especially where we've cost-

RINGNECK REVIVAL

Most folks chasing pheasants today were born a little too late to reap the benefits of the "soil bank" era of the late 1950s and early 1960s—a time generally considered to be the golden days of North American pheasant hunting. But the fact is we're living in our own soil bank era, and we owe it to CRP.

If you visited eastern Montana last fall, you may have attended a special landowner/sportsman dinner on the eve of the pheasant opener, where you could get a steak dinner for a reasonable price and line up a hunting spot or two at the same time. Driving through the countryside, you may have noticed some FW&P "Hunting with Written Permission" signs that signify public access to thousands of acres of private land. These lands are open to hunting thanks to a cooperative "block management" effort between landowners and FW&P. You may also have seen some "Upland Game Bird Enhancement Project" signs, indicating areas where cooperative habitat improvement work is being done, and where landowners have agreed to permit reasonable public access on a permission basis.

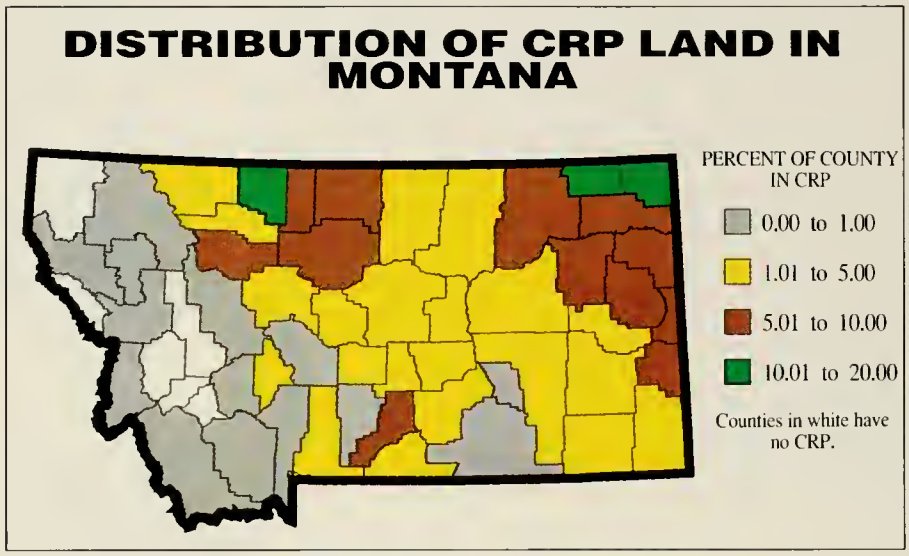
You probably noticed a few more hunters in the pheasant hotspots than you did in the pre-CRP days—that's the inevitable result of good hunting conditions. In the most popular hunting areas, motels are booked solid for much of the season, and cash registers are ringing at cafes, gas stations, grocery stores, and sport shops. But no doubt you also found that there are many more thousands of acres of good pheasant habitat for hunters to spread out in. Most hunters who have seen it both ways are ecstatic about the situation that now exists. Lots of birds and an abundance of huntable land create an atmosphere of friendliness and cooperation between hunters and landowners, as opposed to the frustration that exists when game is scarce and access difficult.

Pheasant hunters pump millions of dollars into the eastern Montana economy each fall. The hunters are there because of the birds, and the birds are there because of CRP. Let's not let the best thing to come down the pike in a long time slip away. If you think CRP has been good for Montana, write your congressional delegates and tell them how you feel about extending the program.

JOHN R. FORD

shared with landowners to get improved mixes of plant cover. By comparison, nest success rates for mallards in intensively farmed areas are often only 8 to 10 percent."

Other types of wildlife, from deer to songbirds, are flourishing on CRP lands. Mule and white-tailed deer are showing up in areas where they were uncommon a decade ago. Lark buntings and grasshopper sparrows—grassland species that have suffered drastic declines over the past quarter-century due to intensive farming—are among the most common nesting species in many CRP fields. Large nongame birds, such as short-eared owls, bitterns, and marsh hawks, also utilize these fields for nesting. A recent survey of CRP land in eastern Montana, the Dakotas, and western Minnesota found 73 species of nesting birds, with the highest density—77 pairs per 100 acres—in Sheridan County, Montana.


DISTRIBUTION OF CRP LAND IN MONTANA
PERCENT OF COUNTY IN CRP
0.00 to 1.00
1.01 to 5.00
5.01 to 10.00
10.01 to 20.00
Counties in white have no CRP.
COURTESY OF USGS NATIONAL BIOLOGICAL SURVEY

WHAT DOES CRP COST?

Critics of the program maintain that the total 10-year cost of approximately $19 billion is too high, and that we can't afford it in these difficult economic times. But supporters of CRP point out that the program has not cost any more than the current federal farm program would have cost in the absence of CRP. In fact, with CRP, taxpayers are receiving significant soil, water, and wildlife conservation benefits at no net cost.

Arnie Kruse, a biologist with the U.S. Fish and Wildlife Service in Jamestown, North Dakota, analyzed the CRP costs for six states—Kansas, Nebraska, Colorado, the Dakotas, and Montana—and compared them with farm payments that would have been made during the same period under the present farm bill. "In three of the states," says Kruse, "CRP turned out to be slightly more expensive, and in the other three, slightly less expensive. Overall, the costs of having the land in CRP were $13 million lower than the costs to the government of having the land in farm production."

Kruse's analysis shows that for Montana in 1991, farm program payments (including CRP) cost a little over $409 million. Had there been no CRP, says Kruse, farm program payments for Montana in 1991 would have been slightly under $424 million. "In addition," he says, "other farm program payments like deficiency payments and export enhancement payments provide no natural resource benefits. According to the Economic Research Service, the research arm of the U.S. Department of Agriculture, the natural resource values of the CRP in Montana add up to more than $28 million annually—and some people feel these values should be higher."

"What it all boils down to," says Kruse, is that "CRP is basically a cost-neutral program. Critics of the program say we don't have the money to continue it, but it's money we're going to spend on farm programs one way or another. Why not spend it in the way that controls erosion, builds wildlife populations, and provides outdoor recreation?"

Other observers maintain that the total economic impact of activity generated by hunting and outdoor recreation on CRP lands should be factored into the equation. Jeff Finden, executive director of Pheasants Forever, feels that wildlife benefits alone may come close to matching the total rental payment costs of CRP. According to U.S. Department of Agriculture estimates, says Finden, "Wildlife benefits like upland game hunting on CRP acres [nationwide] will generate from $3.85 billion to $5 billion in economic activity. When waterfowl hunting, big game hunting, fishing, and other recreational uses are added, wildlife benefits generate almost $10 billion."

This sentiment is echoed by FW&P bioeconomist Rob Brooks. "The economic benefits of wildlife are especially important in Montana," he says. "Hunting provides 4,100 full-time jobs and generates $9.7 million in annual state tax revenue. The total economic activity generated by hunting and wildlife viewing amounts to $217 million each year. Because CRP has such important consequences for wildlife and hunting, it affects Montana's economy in a major way."

CAN CRP BE IMPROVED?

Critics and supporters alike agree that the program can be improved. "There may be parts of the country where CRP isn't as important to wildlife as it is here in the northern Great Plains," says FW&P's Herbert, "or where some of the more productive lands can be put back into use. I'd also like to see some additional permitted uses—carefully controlled grazing or haying after the nesting season that would open up some of the heavier stands of grass and make them more attractive to birds like sharptails and Huns.

"Some of the plantings could be improved through better

DAVE BOOKS

"THE MONTANA PHEASANT HARVEST HAS GROWN FROM ABOUT 43,000 IN 1986 TO ALMOST 121,000 IN 1992, A THREE-FOLD INCREASE."

species mixtures," continues Herbert. "Single-species plantings of grasses like crested wheatgrass aren't diverse enough to provide optimum wildlife habitat. Greater plant diversity would provide more and better nesting sites and allow more kinds of wildlife to use the area."

Other suggestions that have surfaced recently include a sliding scale for CRP payments, where higher payments would be made for land with higher natural resource values and lower payments for land with lower natural resource values. Another proposal deals with public access, a subject that many people feel needs to be addressed in any future land retirement program. Although CRP has created millions of acres of huntable habitat, much of which is available to hunters on a permission basis, the fact that landowners are not *required* to open CRP land to hunting has been a bone of contention. One proposed solution is to provide extra incentive payments to landowners who grant reasonable public access for recreational purposes. Such an option would be available on a voluntary basis and coordinated through state wildlife agencies.

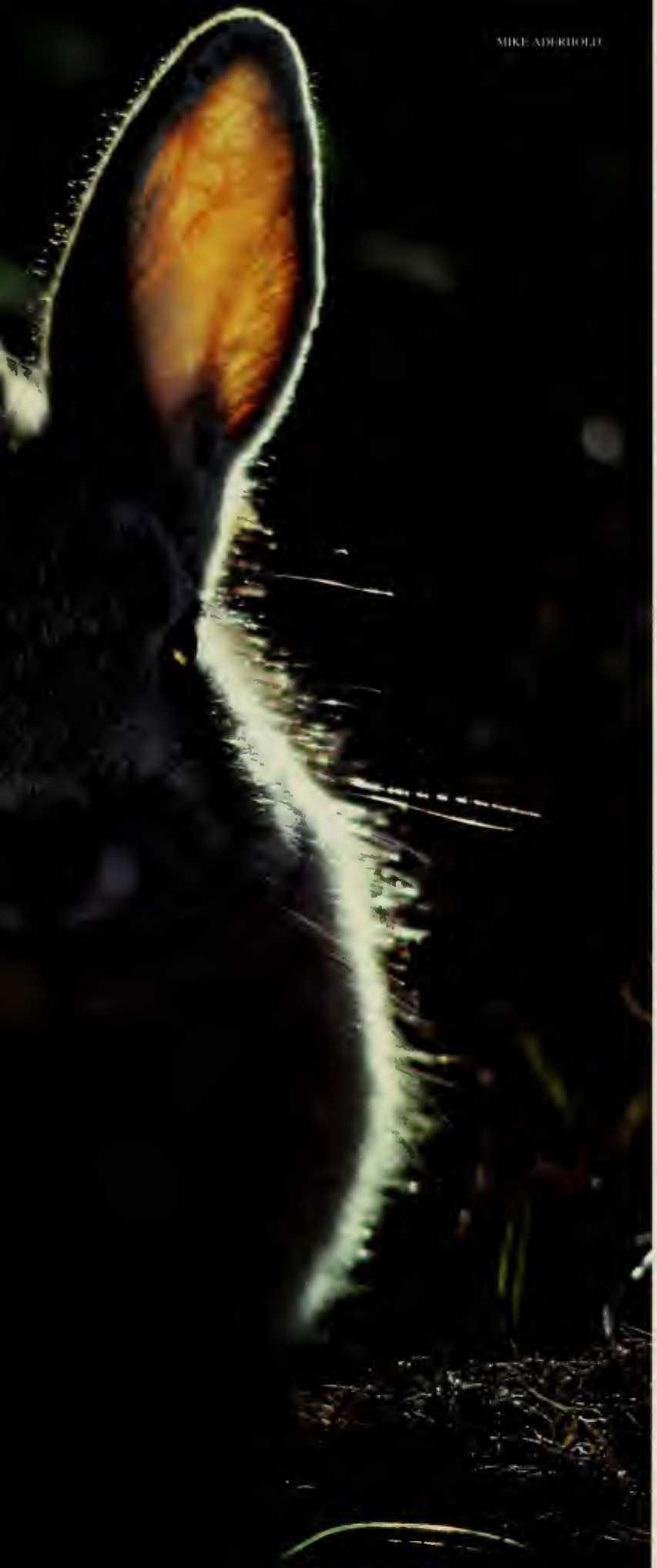
"Regardless of what happens with CRP reauthorization," says FW&P's Hinz, "we hope to secure easements on some of the better wildlife parcels when the current CRP contracts start to expire. These easements would be funded partially through our upland bird enhancement program and partly through matching fund sources like Pittman-Robertson and private foundations. These easements would require that optimum cover be maintained for wildlife and would stipulate that the land be open to public hunting and other forms of recreation."

WHAT DOES THE FUTURE HOLD?

Clearly, the Conservation Reserve Program has had far-reaching impacts on the agricultural economy, on soil and water conservation, and on wildlife populations. Much of the preceding article has analyzed these impacts with facts and figures—tons of soil lost or conserved, millions of dollars spent or saved. And, while CRP passes the bottom-line test of costs versus benefits, it is also important to remember that some of the considerations at stake extend beyond black ink on a balance sheet. For example, what is the true value of restoring the nation's waterfowl populations, of bringing back grassland songbirds, or of curbing pollution of lakes and streams? Because these goals are measures of our quality of life, perhaps the question shouldn't be whether we can afford to attempt them, but whether we can afford *not* to. One thing is certain: We need the Conservation Reserve Program, or something like it, as part of the 1995 Farm Bill. ■

Watchable Wildlife

Bunnies by the Bunch



MIKE ALDERFOLD

JAN L. WASSINK

An eastern cottontail enjoys a siesta in the sun.

by DENNIS FLATH

THE GOLDEN EAGLE cruised slowly, one wing tip nearly touching the ground, flapping just enough to stay airborne. Not far ahead, a cottontail rabbit rested among the rocks, soaking up the morning sun. Following the contour of the steep hillside, the big bird remained hidden until the last second, making the rabbit's escape nearly impossible. The eagle had obviously done this before and approached the task with confidence.

No contest. The eagle plucked the cottontail from the hillside much as you or I would pluck a cherry from a tree.

Among rabbits and hares (members of the order Lagomorpha), predation is a major fact of life. It affects their distribution and habitat selection, and molds the behavioral strategies they need to survive. All lagomorphs have a thin skin that is easily torn by predators. This characteristic, coupled with a high reproductive rate and a high ratio of volume to surface area (compactness), gives them "favored prey" status among an array of avian and mammalian predators.

The list of predators that take rabbits and hares

reads like a "Who's Who" of species that eat meat. A few, however, stand out from the crowd: the golden eagle, the great horned owl, and the coyote. These three prey on several species of lagomorphs across a broad geographic range. In addition, in Montana at least, the long-tailed weasel appears to prey heavily on the pygmy rabbit, and the goshawk on the snowshoe hare.

Rabbits and hares occur in one form or another throughout much of the world, although they are absent from central and eastern Africa, southern South America, and Antarctica. Historic distribution did not include New Zealand or Australia, but the Old World ("domestic") rabbit *(Oryctolagus cuniculus)*, introduced in these countries in the last century, has become well established. This is the same species that has given rise to all the variants of domestic rabbits that are so familiar and well known.

In Montana, lagomorphs are represented by four genera and eight species: (1) pika *(Ochotona princeps);* (2) black-tailed jackrabbit *(Lepus californicus);* (3) white-tailed jackrabbit *(Lepus townsendii);* (4) snowshoe hare *(Lepus americanus);* (5) eastern cottontail *(Sylvilagus floridanus);* (6) mountain cottontail *(Sylvilagus nuttallii);* (7) desert cottontail *(Sylvilagus audubonii);* and (8) pygmy rabbit *(Brachylagus idahoensis)*. All have four upper incisors, with the second pair much reduced in size and located directly behind the first pair. There are five claws on each foot, and the hind legs are much longer than the front legs. Other features include ears that are longer than wide (often very long) and a short but evident tail (except for the pika). Only the last four in the list can properly be called "rabbits" (see sidebar), and they are the subject of this article.

RABBITS HAVE A WELL-EARNED reputation for being prolific. Most species have several litters per year, the number varying with climate. In southern climates cottontails may breed year-round, producing numerous litters (but fewer young per litter than farther north). In the northern U.S. and southern

ERWIN & PEGGY BAUER

TOM J. ULRICH

All rabbits and hares have hind legs much longer than front (upper photo). Rabbits are born in a nest, while hares are born in the open. The young cottontail rabbits at right have grown their coats and will soon leave the nest.

Canada, rabbits usually have up to three litters per year. The mountain cottontail, one of the common species in Montana, is reported to have four litters per year. Litter size in all species ranges from four to eight, and averages about six.

As an aid to understanding the population dynamics of rabbits, try to envision a spring population of one male and three females. Each female has three litters of six, five of which survive to independence. Thus, four rabbits have become a population of 49 in one season! If all the young had survived, the fall population would have been 58 rabbits from the original four. The reason we don't see unusually high densities is because all rabbits continually face the challenge of surviving in a world of talons and fangs from the day they emerge from the nest.

Newborn cottontails open their eyes at 4 to 7 days, move out of the nest at 12 to 16 days, and reach independence at 4 to 5 weeks. Juveniles do not breed during the year of birth, but all rabbits breed the year following their birth.

Cottontails generally do not dig burrows, but they may use or modify burrows made by other animals. Other shelters include brush piles and "forms" (nest-like hiding places above the ground). In most cottontail species, the female digs a hole, often slanted, in which to build her nest and rear the young. She lines the nest with soft plant fibers and fur plucked from her underside. The pygmy rabbit is more dependent on burrows than its cottontail cousins, and may have elaborate tunnel systems with several entrances.

Rabbit populations fluctuate widely over time, sometimes seeming to follow a cyclic pattern. Declines are often attributed to disease and parasite problems, but may include responses to habitat conditions, climatic patterns, and impact (or absence) of predators under some circumstances. In a study of desert cottontails in the 1970s, Ron Paulick and I noted variations in litter size that appeared correlated with external parasites and overall health of adults. In a year of declining population density, the rabbits appeared lethargic and carried excessive loads of fleas—in fact, the surface of the ears and facial features of some rabbits were entirely flea-covered. Concurrently, litter size ranged from two to four. In a year of increasing population density, external parasites were much less in evidence, rabbits were vigorous, and litter size ranged from four to eight.

Longevity of most species is not well known, but probably few individuals survive more than a couple of years in the wild. As an example, the annual survival rate for the eastern cottontail is 20%, and average longevity in the wild is 15 months. One marked individual lived for 5 years, and a captive was still alive after 9 years. Predation is probably the major source of direct mortality, although disease and parasite problems play significant roles. Important diseases include sylvatic plague and tularemia, or "rabbit fever."

Rabbits are adapted to an herbivorous diet. They eat a wide variety of plants, but mostly herbaceous species. In colder regions, cottontails feed on bark and twigs of woody vegetation during winter. Their digestive tract includes an extended "caecum" or blind pouch similar to that of a horse or beaver, which provides additional surface area for digestion and absorption of nutrients. The caecum is the largest part of the digestive tract, having a capacity of up to 10 times that of the stomach.

Rabbits excrete two kinds of fecal material: hard, brown pellets, from which digestion has already extracted nutrients; and soft, greenish pellets, which are reingested, providing a supplemental source of vitamin B. This behavior is known as coprophagy, and is more extensive in some species than others. Cannibalism of their own young may occur periodically, presumably due to stress or crowding.

Pygmy rabbits rely heavily on sagebrush, primarily the seed heads and new shoots. According to studies of pygmy rabbit food habits, sagebrush constitutes 99% of their diet in winter and 51% in summer. The balance of the diet is composed of other woody plants, grasses, and forbs.

MICHAEL H. FRANCIS

The eastern cottontail, one of Montana's three cottontail species, is found only along the eastern border of the state.

THE FOUR SPECIES of rabbits in Montana display unique adaptations to their environments, and while there is some overlap in habitats, each species tends to stick to its own zone. As a consequence, two species will seldom be found together; on the other hand, few areas of suitable habitat exist without a rabbit of one species or another.

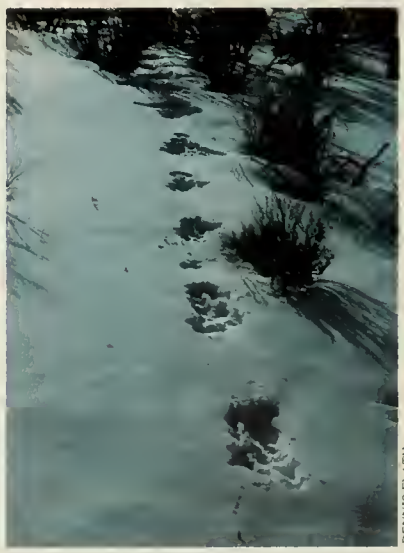
The eastern cottontail is unique because of the great diversity of habitats it occupies: fields, farms, woodlands, deserts, swamps, prairies, hardwood forests, rain forests, and boreal forests. It ranges from southern Manitoba and Quebec through the eastern and southwestern United States, to western Costa Rica, Colombia, and Venezuela. In Montana,

ROBERT E. BARBER

ERWIN & PEGGY BAUER

Desert cottontails (above) are most common in arid habitats at low elevations, while mountain cottontails (above right) prefer the foothill zones. The pygmy rabbit (right) is the smallest rabbit in North America; in Montana, it occupies only the extreme southwestern corner of the state. To expedite travel through the snow, pygmy rabbits are careful to jump into the same tracks on each trip down the trail (far right).

DENNIS FLATH



DENNIS FLATH

it occurs only along the eastern border of the state. Because of its adaptability, aggressiveness, and ability to utilize so many habitats, the eastern cottontail can cause problems for other species when it is introduced to areas outside its natural range.

The mountain cottontail is widespread in Montana, occupying most of the state. However, population densities vary widely depending on habitat. The mountain cottontail prefers habitat that can best be characterized as the foothill zone around mountain ranges. Stands of mountain mahogany on rocky hillsides are classic habitat for the mountain cottontail, but these rabbits are also found in riparian areas with willow and dogwood, shrubby draws, and on rocky ridges with a scattering of shrubs and trees such as juniper. The mountain cottontail is the most common species in the western 40% of the state, except in the extreme northwest, where it is rather scarce.

To the east, the mountain cottontail becomes increasingly rare, and reaches the eastern edge of its range near the North Dakota border. It ranges north into Alberta and Saskatchewan, south well into New Mexico and Arizona, and west to the Cascade range in California, Oregon, and Washington. It does not occur in Lincoln County, Montana; the Idaho

Panhandle; or any of the heavily forested areas of the Upper Columbia Basin.

The desert cottontail is Montana's other widespread and abundant rabbit. This species ranges from near the Canadian border in Montana and western North Dakota south to central Mexico; in the southerly portions of its range, it extends westward to the Pacific Coast. Wherever it is found, the desert cottontail occupies arid habitats and desert areas at lower elevations. In Montana, it is restricted to an area primarily east of the Shields and Smith rivers and south of the Milk River. It is within this geographic area that the desert cottontail replaces the mountain cottontail as the most abundant species. The desert cottontail is the rabbit commonly seen in prairie dog towns, where it enlarges or modifies prairie dog burrows for its own use. Like the mountain cottontail, it also finds shelter under and among rock outcrops and in brushy draws.

The pygmy rabbit is the lone species in the genus *Brachylagus*. As its name implies, the pygmy is the smallest rabbit in North America and possibly the world. The pygmy rabbit occupies the Great Basin of western North America. Its range in Montana is restricted to the extreme southwestern corner of the state, extending from the Idaho border north to Dillon and Bannack in Beaverhead County. There, it is limited to areas that contain tall, dense sagebrush, typically along streams. Individual sagebrush plants in areas inhabited by pygmy rabbits are often six feet or more in height. Beyond this "riparian sagebrush" zone mountain cottontails may be encountered, and the two species occasionally overlap. Because of their vulnerability to predation, pygmy rabbits are generally restricted to areas with heavy cover and soils suitable for developing a burrow system.

The pygmy rabbit, because it is so small, has developed a unique method of traveling through deep snow. While other species cope with snow by creating continuous trails, pygmy rabbits are careful to jump into the same tracks on each trip. The result is a "trail" of uniformly spaced landing spots that become well packed with time. This behavior helps the species avoid the energy expenditure of constantly breaking a new trail. Pygmy rabbits also sometimes use tunnels beneath the snow.

The pygmy rabbit is currently considered a candidate for listing under the Endangered Species Act. Loss of preferred habitat is probably the most significant factor in population declines. Protection of sagebrush, particularly on floodplains and where high water tables allow growth of tall, dense stands, is vital to survival of this species.

In much of the United States, cottontails and snowshoe hares are important game species. Because Montana hunters tend to concentrate on big game, hunting pressure on rabbits is light and has no detectable impact on population levels. In Montana, rabbits can be hunted year-round, and there are no bag limits. The cottontail hunting that does occur is focused almost entirely on the most abundant and widespread species, the mountain and desert cottontails. ■

Rabbit or Hare?

• The term "hare" should be restricted to the genus *Lepus*, and all other lagomorphs should properly be called either "rabbits" or "pikas." However, confusion exists because the term "jackrabbit" is applied to several members of the genus *Lepus*, and the "Belgian hare" is really a rabbit, being a breed of the Old World ("domestic") rabbit.

RICHARD MOUSEL

White-tailed jackrabbit

• Rabbits are born naked, blind, and helpless (altricial) in a nest prepared especially for them. Young hares are born in the open, not in a nest; they are born fully furred, have their eyes open, and are able to run in a few minutes (precocial).

• Rabbits, unlike hares, utilize underground shelters or burrows for escape, hiding, and bearing and rearing young. Burrows may be those of other species (common with desert cottontails), natural cavities in rocky areas, or of their own construction. Hares utilize a "form" or nest-like hiding place above the ground rather than a burrow.

• Rabbits have one molt per year, while hares have two molts per year. Hares adapted to northern climates typically change color at each molt, becoming white in winter to match the snow-covered terrain (while this holds true for snowshoe hares and white-tailed jackrabbits, black-tailed jackrabbits retain their dark pelage at each molt).

• Rabbits may be active at any time of day, although they tend to be most active at dusk and dawn (crepuscular). Hares are generally nocturnal, preferring to forage under the cover of darkness. This trait may represent replacement behavior for the safety of underground shelters used by rabbits. Or, it may just be the latest in hip-hop fashion.

Further Adventures of a
Travelin'

Fish

BARBARA THOMAS

by JOHN FRALEY

Editor's note: Our March/April 1989 issue carried an article called "Travelin' Fish," in which John Fraley detailed the life history of the bull trout and described its status and uncertain future. Since that time, some threats to this vulnerable species have been averted while others have intensified. In this update, Fraley explores past and present attitudes about this native species and describes activities underway at the local, state, and federal levels to protect existing bull trout populations and restore them to areas where they have disappeared.

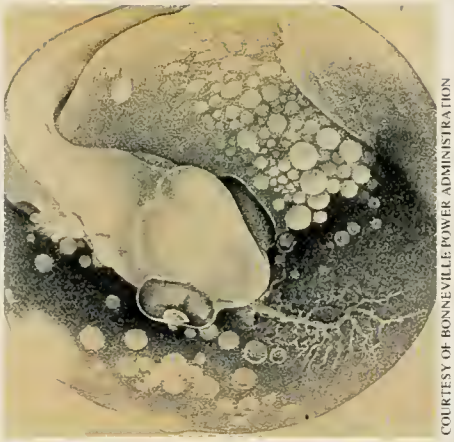
FOR MILLENNIA, bull trout have traveled one of the longest migration routes of any trout in North America, and they've attracted attention since the first Native Americans pulled the spawning fish from small headwater streams. Voracious predators, they've been called everything from poor man's salmon, to coyote-fish, to cannibal, to trophy, to species of special concern.

Now, because of declines throughout its range and a recent petition to list it under the Endangered Species Act, the bull trout is being called the Northwest's next spotted owl.

Bull trout are actually "chars" that can grow to three feet in length. Once common throughout the Pacific Northwest, they originally ranged from northern California to the Bering Sea. Over the eons, they've evolved three different life strategies: Some spend their entire lives in small tributary streams; others live as adults in rivers and enter tributaries to spawn; still others live as adults in lakes and spawn in tributaries (this largest form is similar to the Dolly Varden, a coastal relative).

Young bull trout in tributaries eat aquatic insects, but adult bulls are decidedly predaceous. They eat mostly other fish, but have been known to devour frogs, garter snakes, mice, and ducks.

Bull trout spawn in the fall about the time the larch needles turn golden. Their eggs remain six inches deep in spawning gravels until spring, when the eggs hatch and the fry



COURTESY OF BONNEVILLE POWER ADMINISTRATION

JOHN FRALEY

Bull trout eggs, buried among spawning gravels in autumn, hatch about 200 days later (above). Young bull trout, like the 2-year-old at right, stay close to the shelter of stream bottom rocks for up to four years before migrating downstream.

emerge. Young bull trout then huddle among the stream bottom rocks for one to four years before migrating downstream to bigger streams or lakes. The long, overwinter egg incubation and bottom-dwelling habits of the young fish render the species hypersensitive to increases in stream bottom sediments, and make bull trout a prime indicator of stream health.

PAST ATTITUDES about bull trout reflect the almost complete change in the way people have viewed natural systems over the years. Native Americans have always revered the bull trout as part of their culture, but Euro-Americans at one time viewed them differently. The June 1926 issue of *Montana Wildlife* referred to the bull trout as "the cannibal of Montana's streams." The author of the article backs up the claim by describing a 12-inch bull trout which had in its stomach "...the undigested bodies of 103 minnows...which may have been small native fish, or the young of game fish." He goes on to state, "Montana Sportsmen have declared war on the Dolly Varden or bull trout, the cannibal of the trout family...."

In fact, bull trout were targeted for eradication in the early 1900s, and harvested in a commercial fishery on Flathead Lake beginning about 1913. In 1926, M.J. Elrod, an otherwise enlightened professor at the University of Montana Biological Station on Flathead Lake, called the fish an "enemy" and wrote that the bull trout was "undoubtedly the worst fish in the lake with regard to the destruction of other fish."

But attitudes changed and in 1957 George Weisel, a professor at the University of Montana, warned that the bull trout was declining throughout its range and could eventually become extinct. About the same time, the Montana Department of Fish and Game (now Fish, Wildlife & Parks) began taking steps to protect the fish, such as halting fishing on tributaries used by spawning bull trout in the North Fork of the Flathead River drainage. Dallas Eklund and other forward-thinking members of the Flathead Wildlife Club called for protection of bull trout habitat. Anglers, FW&P biologists, and others teamed up to help halt plans for dams on the main Flathead River and Middle Fork, citing the devastating effect the dams would have on migratory bull trout from Flathead Lake.

The Montana Fish and Game Commission continued efforts to protect the species in the 1960s and 1970s by closing more tributaries to angling and reducing the harvest limits—by the early 1980s, anglers could take only one bull trout daily. Concurrently, state and federal agencies began a major effort to protect stream habitat from the effects of poor logging practices and other development. Today, anglers can keep one bull trout daily in only two western Montana waters: Swan Lake and Hungry Horse Reservoir.

In the late 1980s, an International Joint Commission averted potential disaster for Flathead Lake bull trout by denying Sage Creek Coal Ltd. of Canada a permit for an open-pit coal mine in the upper North Fork drainage. According to the U.S./Canadian Joint Commission, the mine would have destroyed vital bull trout spawning habitat in Howell and Cabin creeks, tributaries to the Canadian portion of the North Fork. This decision reflects the special concern people of the two countries hold for bull trout.

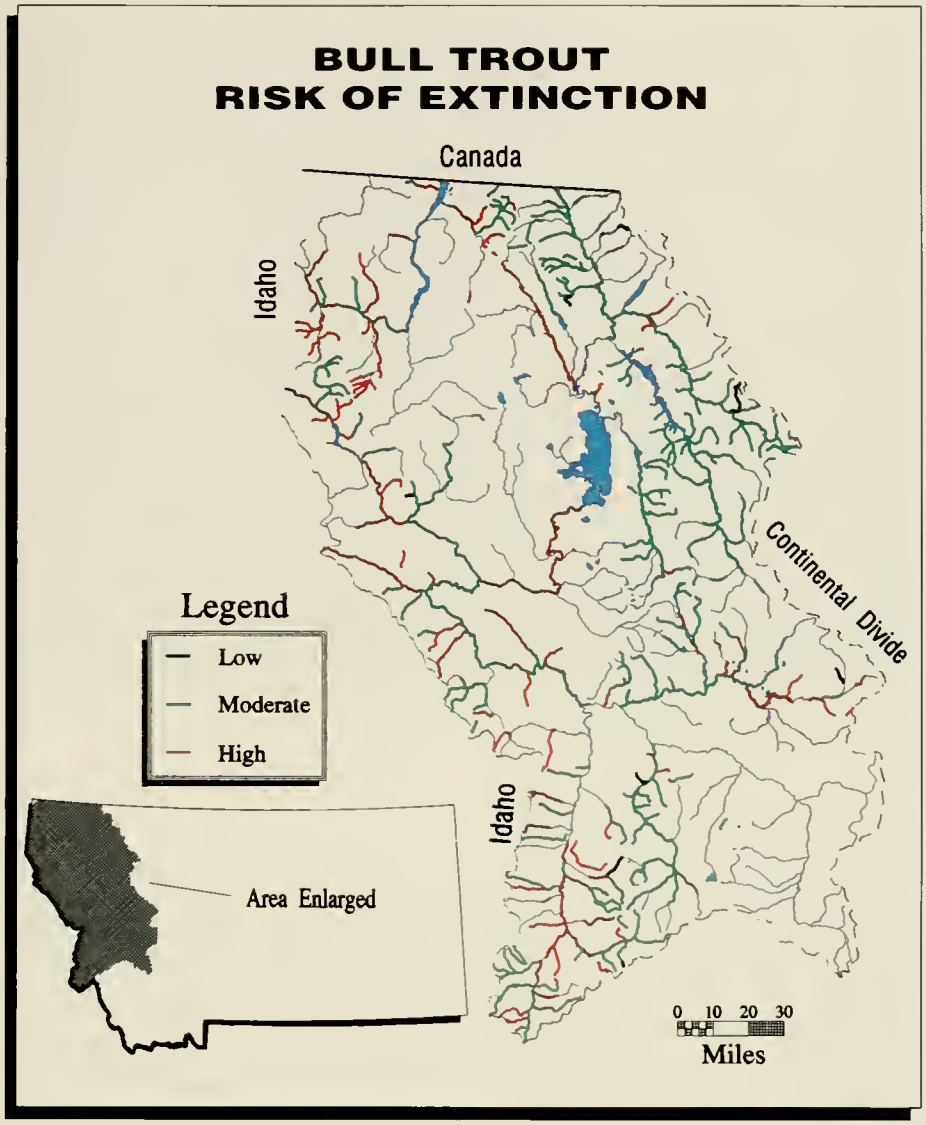
In recent years, studies and protection of bull trout have continued to expand. But in spite of these efforts, the species is in trouble in most areas of Montana and around the West. The reasons are complex and hotly debated, but they all relate to changes brought about by man.

WHAT IS THE STATUS of bull trout in the western U.S.? The picture is not very rosy. Bull trout are extinct in California, and they live in only one river system in Nevada. In Montana, where more is known about bull trout than in the other four states making up their range, they live in about 1,230 stream segments. In the majority of these areas, biologists consider the chance of extinction moderate to high (see map). In the 818 segments for which adequate information exists, bull trout are considered

secure in only about 56 out of 2,915 total stream miles (2%). Scientists consider bull trout at moderate risk of extinction in 1,907 stream miles (65%), and at high risk of extinction in 953 stream miles (33%). They face these high extinction risks mostly because of damaged stream habitat and the presence of exotic fish species.

In the Flathead system, long considered the nation's bull trout stronghold, the fish is in trouble in the North and Middle Fork drainages where spawning runs of the big, migratory fish have declined by two-thirds since the mid-1980s. In the Swan drainage, spawning runs are increasing, but threats of hybridization with brook trout exist. The population appears good in the South Fork of the Flathead drainage, although it's threatened by drawdowns of Hungry Horse Reservoir. Bull trout populations in the Bitterroot drainage are isolated in small stream segments above the valley floor, and bull trout are thought to be declining in the Clark Fork and Kootenai drainages.

Oregon and Washington each count the number of bull trout populations at less than 100, and most bull trout populations are thought to be at moderate or high risk of extinction. Idaho has more bull trout than either Washington or Oregon, but little is known of the fish's status. Says Steve Huffaker of the Idaho Department of Fish and Game: "There's a lot of real estate and a lot of bull trout populations, but we don't know much about them. We do know that some populations, like the Priest Lake fish, are in terrible shape."



Staff of the Montana Rivers Information System (MRIS) produced this map identifying risk of extinction for bull trout in Montana stream segments. The "GIS" technology needed for this work has been under development for nearly 10 years. The MRIS staff includes: Lydia Bailey, Gael Bissell, Denise Davies, Janet Decker-Hess, and Jeff Hutten. Their office is located in the Montana Department of Fish, Wildlife & Parks building, 490 N. Meridian; Kalispell, MT 59901; 406/752-5501.

CAUSES OF BULL TROUT decline are area-specific, but managers in each state cite loss and damage of stream habitat as the major factors. Sedimentation, dewatering, loss of habitat diversity, and elevated water temperatures (bull trout require very cold water) lower the potential of streams to support bull trout; dams or culverts block access to spawning areas.

Scientists also point to exotic species as a serious threat to healthy bull trout populations. Non-native brook trout can hybridize with bull trout, producing offspring that are mostly sterile. Lake trout, once present in only a few Montana lakes but now more widely distributed, prey on young bull trout, as do large fish of other species. Opossum shrimp, introduced to northwestern Montana in the 1960s, may improve the survival of lake trout and indirectly contribute to higher bull trout mortality. Many people believe this problem exists in Flathead Lake.

Is poaching a problem? Mack Long, warden sergeant for FW&P, believes it is a major factor in the decline of bull trout in the Kootenai system, and he bases this belief on interviews with convicted poachers. "When bull trout reach river pools near the mouths of spawning tributaries, poachers are hammering them," he said. "Some of these guys are full-blown poachers and even *they* say that the only way to protect bulls in the Kootenai is to close the tributaries to angling. They say some people who fish the streams will be opportunistic and take a seven or eight pound bull trout if they have the chance. And it's extremely hard to catch those guys.

"We've spent a lot of time trying to catch poachers working the river near Kootenai Falls. A few years back, war-

JOHN FRALEY

Spawning runs of large, migratory bull trout have declined by two-thirds in the North and Middle Fork drainages of the Flathead River since the mid-1980s.

den Mike Mehn saw poachers sliding down a rope to reach a pool below a set of cliffs. Once the poachers got down into that hole they were virtually invisible. So Mike got to a vantage point and watched them snag for bulls for about two hours. During that time they hooked four fish but didn't land any of them. Finally, they tied into a big one, got it nearly on shore, but the fish was so big that it scared the gaffer and the fish got away. Finally they gaffed one." Mehn pursued and caught the poachers, who were convicted, fined, and relieved of their fishing privileges.

Interviews that Long taped with some of the convicted poachers illustrate the magnitude of the poaching problem in the Kootenai system. One of the poachers who shinnied down a rope to reach fishing holes on the river admitted to losing many of the fish he snagged: "When I was doing it I'd only land one bull for every six fish I hooked into. I suppose most of the fish that got away died. I'd use a big old Ugly Stick rod, a deep-sea reel, 40-pound test line, and a 3-1/2 ounce snag hook flagged with white cloth." The poacher estimated that about 20 people were involved in systematic snagging of bull trout on the river. Another poacher described methods used to catch spawning bull trout in small tributaries, identifying dynamite and spears as the methods of choice.

FEDERAL PROTECTION for bull trout may be coming. In October of 1992, in reaction to shrinking bull trout numbers around the West, three northwestern Montana environmental groups (Alliance for the Wild Rockies, Swan View Coalition, and Friends of the Wild Swan) filed a petition with the U.S. Fish and Wildlife Service calling for listing of bull trout under the Endangered Species Act throughout the species' range in Montana, Oregon, Idaho, Washington, and Nevada. In May of 1993, the federal agency released a positive finding, indicating there was sufficient information in the petition to warrant a review. A status review now underway will determine whether: (1) listing is unwarranted; (2) listing is warranted but precluded because of higher priorities; or (3) listing is warranted and will go forward. The recommendation will be published in the federal register and be subject to scientific and public review for one year.

"Whether the decision is to list the bull trout or not, we must recognize that the species is in trouble," said Bill Martin of the U.S. Fish and Wildlife Service in Portland. "Are bull trout in such deep trouble that they require the authority of the Endangered Species Act? That's what the process will show, one way or the other. We'll base the judgment on biology, and nothing but biology."

The listing process has fallen behind schedule, prompting the petitioners to file a suit against the U.S. Department of the Interior. "We believe the information is there and it's time to apply the law," said Mike Bader of the Alliance for the Wild Rockies.

Work on a Montana restoration plan, endorsed by Governor Marc Racicot, is underway and will go forward regardless of the outcome of the listing process. Chris Hunter, Special Projects Chief for FW&P's Fisheries Division in Helena, outlined a stepwise process begun by the Governor's Roundtable that will lead to a plan by late 1995 (see sidebar).

"A policy-level working group, made up of people from the wildlife and land and water management agencies, Confederated Salish and Kootenai Tribes, conservation groups, Plum Creek Timber, and others, will oversee the entire bull trout restoration effort," he said. "A scientific group and specific watershed groups give advice on components of the recovery plan. And to make it all work, we plan to open all meetings to the public. I think it's important that everyone gets the chance to participate." Hunter added that hundreds of concerned people took

part in a series of meetings across western Montana as a prelude to the roundtable.

But Keith Hammer of the Swan View Coalition charges that the effort to write a recovery plan is nothing more than an attempt to avoid federal listing. "Since we filed the petition, we've seen a flurry of activity, all the agencies scrambling to put something together that might keep bull trout off the list," he said. "I believe that in Montana the state squandered its opportunity to save the bull trout. The state lacks the authority on federal land and lacks the political will power to halt the slide of bull trout—that's why we think federal listing is absolutely essential or the bull trout is doomed."

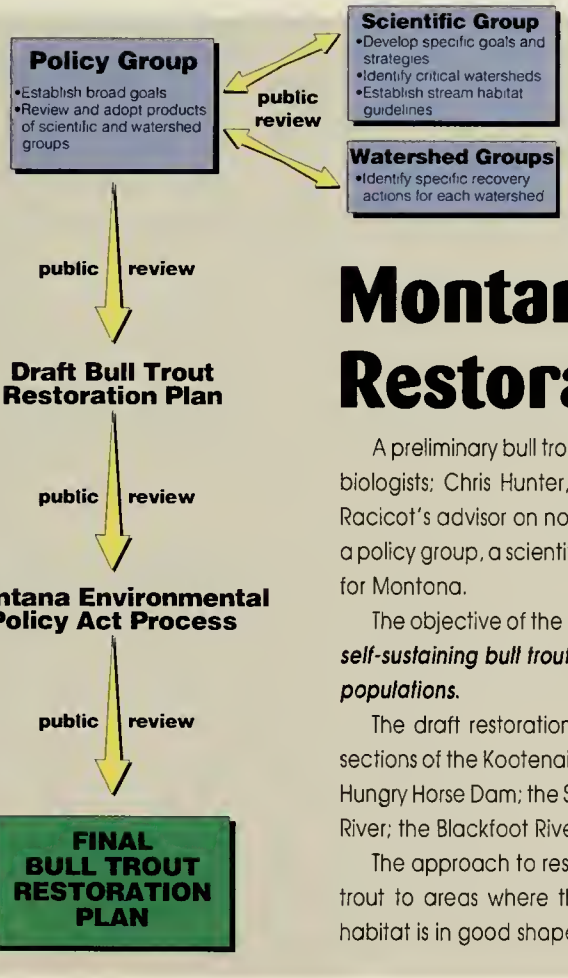
Hammer further charged that conservation agreements between state and federal authorities are a poor substitution for legal protection. "We see the Forest Service and the states holding this up as some kind of solution, knowing full well it would be far less restrictive than legal protection. What looks phony and sounds phony usually is phony."

Hunter acknowledged that the petition to list the bull trout was a catalyst for the Governor's Roundtable, but rejected the argument that the state was not contemplating a recovery plan. "We began our status review of bull trout in Montana well before the petition was filed," he said. "And although we don't have land management authority on federal lands, I believe bull trout are an important enough piece of our heritage that we will work together to find a solution. We're not doing this to preclude federal listing or to maintain the status quo. We're doing it because it's the right thing to do—it's our responsibility."

Steve Kelly of Friends of the Wild Swan asserts that logging roads are responsible for delivering sediment to streams, and that standards for stream habitat quality are needed if bull trout are to have any chance for recovery. "There are roads built out there you couldn't believe, and more are being punched in all the time," he said. "Years ago I said that every old growth tree that a truck could be backed up to would be cut, and I believe I've turned out to be right. What we need are stream habitat standards that will be enforced. Sediment and water temperature are measurable and standards for these would protect bull trout."

Both Kelly and Hammer maintain that the state, U.S. Forest Service, and other agencies haven't worked hard enough to develop standards for stream bottom sediment. Hammer went so far as to call recommendations from the three-year Flathead Basin Cooperative Water Quality and Fisheries Study a "blueprint for bull trout extinction."

Not so, say representatives of the cooperating agencies, pointing out that the study was state-of-the-art, and that many of the points outlined to protect stream habitat have been adopted by the Forest Service through amendment of the Flathead National Forest Plan. "We amended the forest plan and expanded standards for stream habitat quality to protect bull trout and westslope cutthroat trout," said Mike Enk, fisheries biologist for the Swan



Montana's Bull Trout Restoration Goal

A preliminary bull trout restoration goal has been drafted by an interagency group of fisheries biologists; Chris Hunter, Special Projects Bureau Chief for FW&P; and Glenn Marx, Governor Racicot's advisor on natural resource policy issues. A Bull Trout Restoration Team, composed of a policy group, a scientific group, and watershed groups, will develop a bull trout restoration plan for Montana.

The objective of the bull trout restoration plan is to ensure the continued existence of ***healthy, self-sustaining bull trout populations and habitat in Montana, and to provide fishable bull trout populations.***

The draft restoration goal identifies 12 bull trout populations in Montana, including: three sections of the Kootenai River; Flathead Lake; the South Fork of the Flathead River upstream from Hungry Horse Dam; the Swon River; the middle Clark Fork and Lower Flathead rivers; the Bitterroot River; the Blackfoot River; the upper Clark Fork River; the Saint Mary River; and the Belly River.

The approach to restoration includes protecting existing bull trout habitat and restoring bull trout to areas where they have disappeared. Restoration will concentrate on areas where habitat is in good shape and chances of success are greatest.

One Montanan's View

by Governor Marc Racicot

When I'm asked about the state's commitment toward bull trout recovery, my usual response is that we shouldn't restore bull trout because we have to, but because we want to.

I assure you, we want to.

Just as the threats to bull trout are diverse, so too are the reasons for our commitment to restoration.

Perhaps the basic reason is that the bull trout is a native Montana fish and we have an obligation, as temporary stewards of Montana's wildlife resources, to assure healthy and stable populations of our native wildlife. How we manage wildlife not only says a lot about us as a society and culture, but also ensures that future generations of Montanans have the same opportunities we've had to enjoy and appreciate fish and wildlife.

In addition, the State of Montana—through the Department of Fish, Wildlife & Parks—is legally required to manage, protect, and conserve wildlife. It is the Department's mission to manage and restore wildlife populations, and we should not surrender that mission to federal agencies or federal mandates.

Another reason is that the people of Montana deserve to be actively involved in resource management. The bull trout restoration plan will make sure people who live, work, and recreate in Montana have opportunities to contribute ideas, insight, and expertise at every step in the plan's formulation. People who care about bull trout, and people potentially impacted by bull trout recovery, deserve an active role in developing the plan.

Another plus is that the conservation strategies embodied within the bull trout restoration plan can assist other aquatic life and fish, such as the westslope cutthroat trout.

Finally, through the cooperative process undertaken by the Bull Trout Restoration Team, federal and state agencies, private landowners, conservation organizations, and others will communicate and work side by side in collaborative fashion toward a common goal: restoration of bull trout without upending western Montana's economy.

I appreciate, respect, and admire the determination expressed by the members of the Bull Trout Restoration Team. They have a difficult and important task. All of us should assist them and pledge a commitment toward contributing to the plan's success.

Ranger District. "Then in 1991 we added numerical guidelines for sediment levels based on the Flathead Basin Commission Study results. In addition to these steps, we've had streamside protection measures in place. We've never ignored the need to protect important bull trout streams."

Lorin Hicks, a biologist for Plum Creek Timber, argues that listing of bull trout is unwarranted, and that the role of timber harvest in the decline of bull trout has been overstated. He notes that his company has imposed voluntary "best management practices" to protect stream habitat throughout its 1.7 million acres of timberland. He also points out that sediment levels in some streams where no timber has been harvested in the watershed are higher than in some managed drainages.

THE POLITICS of bull trout recovery go beyond timber issues. In some areas, water withdrawals for irrigation threaten tributaries that support bull trout. According to Bitterroot Valley rancher Bob Schrader, ranchers in that area want to help in bull trout recovery but there is only so much water to go around. "If you want to get in a fight with agriculture, start fiddling around with water rights," he said. "Some people say it's too little too late and the bull trout are all gone, only the federal government can save our behinds. But I don't see anything that can't be corrected with cooperation and education. We want to help, but there's a lot of mixed emotions."

Managers agree that it will not be easy to halt the slide of the West's bull trout populations and turn them toward recovery. But most agree that the solution lies in protecting sensitive stream habitats, strictly controlling bull trout harvest, and addressing the problem of competing exotic species. One proposed tool for recovery, the stocking of bull trout raised artificially in a hatchery, has prompted emotional outcries from detractors who say it could turn into a bull trout version of Jurassic Park.

But Wade Fredenberg, Fish Production Coordinator for the U.S. Fish and Wildlife Service at the Creston National Fish Hatchery near Kalispell, believes that genetically-correct, hatchery-raised bull trout could prove to be a vital source for reestablishing the species across its former range.

"We're having great success raising bull trout fry from 20,000 eggs collected last fall from adult bull trout in the Swan drainage," he said. "I think our work and work done in Canada shows that the species can be raised in a hatchery. Now we have to decide what role hatchery fish should play in the restoration plan."

If any hatchery effort is to succeed and if a Jurassic Park-like disaster is to be avoided, the genetics of bull trout stocks used in spawning must be known. Last year, Fredenberg completed a systematic

collection of young bull trout around the Flathead drainage and shipped them to scientists at the University of Montana for genetic tests.

"What we've seen so far is four separate clusters. Fish from the major drainages—Swan, Stillwater, North Fork Flathead and South Fork Flathead—are notably different from one another. Within a drainage, the fish are genetically similar. Only two of the 45 genes examined showed differences, but there's a lot of variation within those two genes.

"The whole purpose of this is if we decide, for example, to use hatchery bull trout to start a population in the North Fork, we probably shouldn't use Swan drainage fish, or we may change the genetics in the drainage."

Another surprising result of the research pointed to different levels of hybridization between bull trout and brook trout. In Lion Creek, a Swan River tributary, 11 of 25 "bull trout" collected turned out to be hybrids. But in Bear Creek, a tributary of the Middle Fork supporting both bull trout and brook trout, no hybrids were found in the 50 fish tested. These results leave managers uncertain about how to deal with the problem of hybridization in different stream reaches.

Success or failure of efforts to bring back the bull trout will be a measure of our society's environmental conscience. As Steve Huffaker put it, "The filing of the petition to list the bull trout was an act of frustration, and if the species is listed, it's an admission of failure."

Can Montanans rise to the occasion and develop a recovery plan that will work to save bull trout? Governor Racicot thinks so. He has called for voluntary partnerships to encourage bull trout recovery. "I don't want to just manage problems, I want to solve them," Racicot said. "I think a caring, progressive government can protect a precious resource like the bull trout." ■

What Do YOU Think?

JOHN LAMBING

Public input often makes the difference between success or failure of wildlife recovery efforts. Please take a few moments and respond to the following questions; your responses will aid in bull trout restoration. Mail your comments (this page, a photocopy of this page, or a plain piece of paper) to: Montana Dept. of Fish, Wildlife & Parks, Attn.: Chris Hunter, 1420 East Sixth Avenue, P.O. Box 200701, Helena, MT 59620-0701.

(1) Do you agree or disagree with the recovery goal as stated for bull trout in Montana? __ agree __ disagree __ don't know.

(2) Would you volunteer to serve on a watershed recovery group in your area to help build conservation strategies for bull trout? __ yes __ no. If yes, please include your name, address, and phone number at the end of the survey.

(3) Do you believe that management should favor the native bull trout even if this means the loss of some recreational fishing opportunity for native and/or non-native fish? __ yes __ no.

(4) Do you agree or disagree that Montana should take an active role in the bull trout recovery effort as described in this article? __ agree __ disagree __don't know.

(5) Are you aware of bull trout populations in your area that existed in the past but are no longer there? __ yes __ no. If yes, please include your name, address, and phone number below.

(6) Do you have any historical information or old photos of bull trout that might be helpful? __ yes __ no. If yes, please include your name, address, and phone number below.

(7) Would you like to be included on a mailing list to receive further information on the bull trout recovery effort? __ yes __ no. If yes, please include your name, address, and phone number below.

Name, address, and phone number:

Please include any additional comments or suggestions on a separate sheet of paper.

A PARK FOR ALL PEOPLE

CHIEF·PLENTY·COUPS·STATE·PARK

by KEN ORAVSKY and RICH PITTSLEY

THE MOST ELOQUENT speaker at the original Veterans Day ceremony held in Washington, D.C., on November 11, 1921, was a man from Montana. This statesman traveled often to Washington, and listed Theodore Roosevelt and World War I leaders U.S. General James G. Harbord and French Field Marshall Ferdinand Foch as his friends. He received gifts from many people all over the world, including a Remington rifle presented by the Prince of Monaco. He also attended Woodrow Wilson's first inauguration in 1913.

Though he lived his whole life within the borders of Montana, he was never a citizen of Montana, nor of the United States. Alech-chea-hoos, or Plenty Coups, was Apsaalooke (pronounced Ab sa' lo ga) , or Crow. He was the last head chief of the Crow Tribe. During the often-difficult transition from a nomadic lifestyle to the reservation way of life, Chief Plenty Coups often stood alone, leading his people toward a peaceful coexistence with the Euro-Americans moving into Crow country. Plenty Coups was

Chief Plenty Coups

often referred to as the "Chief of Chiefs" for his efforts to preserve his culture through cooperation with the Euro-American culture, rather than military conflict.

Chief Plenty Coups was born in 1848 close to present-day Billings, near the "place that has no pass." As a young man, he fasted in the Crazy Mountains, and the site of his future home was revealed to him in a vision. Many years later, Plenty Coups, speaking with his biographer, Frank Linderman, recounted the vision that led him to build his home at this location:

"I dreamed. I heard a voice at midnight and saw a person standing at my feet, in the east. He said 'Plenty Coups, the Person down there wants you now.' He pointed, and from the peak in the Crazy Mountains I saw a Buffalo-bull standing where we are sitting now. I got up and started to go to the Bull, because I knew he was the Person who wanted me. The other Person was gone."

Plenty Coups' vision continued with the Bull changing into a "Man-person wearing a buffalo robe with the hair outside." Plenty Coups continued to explain that the "Man-person" told him to follow through a hole in the ground to the Arrow Creek Mountains (the Pryors). "At last we came out of the hole in the ground and saw the Square White Butte (Castle Rocks) at the mouth of Arrow Creek."

Plenty Coups then told Linderman

how the "Man-person" shook his red rattle and pointed out toward the plains filled with "Spotted-buffalo." These odd-looking buffalo were interpreted by the clan's medicine man, Yellow-bear, and other clan men of importance as the cattle that would take over their lands and replace the buffalo. Plenty Coups continued:

"I followed him back through the hole in the ground without seeing anything until we came out right over there [pointing] where we had first entered the hole in the ground. Then I saw the spring down by those trees, this very house just as it is, these trees which comfort us today, and a very old man sitting in the shade, alone."

Plenty Coups was told that he was indeed the old man in the vision. He knew that he was to build his home near the sacred spring. Plenty Coups had his log home built near Pryor Creek, overlooking the Medicine Spring in the early 1890s. He also built a small store near the home, where he sold apples from his orchards and other items in an effort to demonstrate the mercantile system to his people.

In 1921 at Arlington, Virginia, Chief Plenty Coups (wearing headdress at left side of photo) represented all Indian tribes at the original burial ceremony for America's unknown soldier.

DURING THIS PERIOD, the Crow people, as well as other plains tribes, were being moved onto reservations by the U.S. government, a change that many native people resisted. The government set up schools on the new reservations, but many people refused to attend or to send their children to them. Plenty Coups, although he never learned to read and write in English, was a great proponent of education. At every opportunity, he encouraged his people to pursue a good education. Plenty Coups is well known to Native Americans across the continent for his famous quote, "With education, you are the white man's equal, without it, you are his victim."

Plenty Coups made his first trip to Washington, D.C., in 1879. He also made many subsequent trips. With each successive trip, he became more well known, and was increasingly viewed as a representative of all tribes.

During one trip to the nation's capital, Plenty Coups visited Mount Vernon, the home of George Washington. He later told Frank Linderman how Washington's home inspired him:

"Many years ago...I stood beside the tomb of the first white Chief, George Washington, and felt glad to be there. I had heard much about this Chief, and had noticed that no man spoke harshly of his life or deeds, and that all held his name in reverence. I was one among many visitors at Mount Vernon that day, and yet there was no talking, no noise, because people were thinking of the great past and the unknown future. When people think deeply they are helped, and in the silence there I sent my thoughts to the Great White Chief in that other life. I spoke to him, and I believe he heard me. I said: 'Great Chief, when you came into power the streams of your country's affairs were muddy. Your heart was strong, and your tongue spoke straight. Your people listened, and you led them through war to the peace you loved. They remember your words even to this day, are helped and made strong by them. As you helped your people, help me now, an Absarokee Chief, to lead my people to peace. I, too, have a little country to save for my children.'

"I felt then that he heard me, and I have not changed my mind. Mount Vernon is very beautiful. People travel far to see it. I planned then to leave my house and some land around it, as a park for my people."

IN 1928, CHIEF PLENTY COUPS deeded his allotment on 189.2 acres to the U.S. government to be used as "a park for all people." An elaborate ceremony was held the next year at his home, and his friend General Harbord accepted the gift on behalf of the government.

The U.S. government, however, could not legally accept title to the land. When the Chief died in 1932, the land was given to the Big Horn County Commissioners to manage. As the Chief had specified, they used income

from agricultural leases on the outer 149 acres to maintain the house and 40-acre "park area."

In 1951, because of the friendship between Plenty Coups and Billings Kiwanis president George Snell, the Kiwanis Club became the park's trustee under a court order of August 8, 1951. The Kiwanis Club paid for a caretaker and also restored a log building in which Plenty Coups kept a general merchandise store. The Kiwanis Club also restored the grave site, and operated a museum in the south addition of the Chief's house.

In 1965, the Parks Division of the Montana Department of Fish, Wildlife & Parks (then known as Fish and Game) assumed jurisdiction of the state park. Cattle were excluded from the area of the park used by people and the house was set aside for display. The caretaker was housed in the Chief's house.

Today Chief Plenty Coups State Park consists of 195 acres. The park includes a two-story log house, Plenty Coups' store, a museum built in 1972 to house Plenty Coups' artifacts, public picnic facilities, a burial site, and the Medicine Spring just north of the main house.

Visitors from all states and provinces, as well as from all over the world, visit the Chief's park each year. Museum exhibits tell the story of Plenty Coups' life from early childhood through his days as a great chief and statesman. Additional exhibits guide the visitor through the story of Crow history and culture. The museum also displays and protects more than 180 sacred items and artifacts. Visitors can learn about Crow culture from Lawrence Flat Lip, a museum interpreter and fifth-generation blood relative of Chief Plenty Coups. Lawrence is a keeper of many oral histories, including stories about Apsaalooke (the original name of the Crow people), stories about the "children of the raven," and a version of how the name "Crow" came into use. A gift shop in the museum offers many books, videos, and Crow crafts.

LEE GRAVES

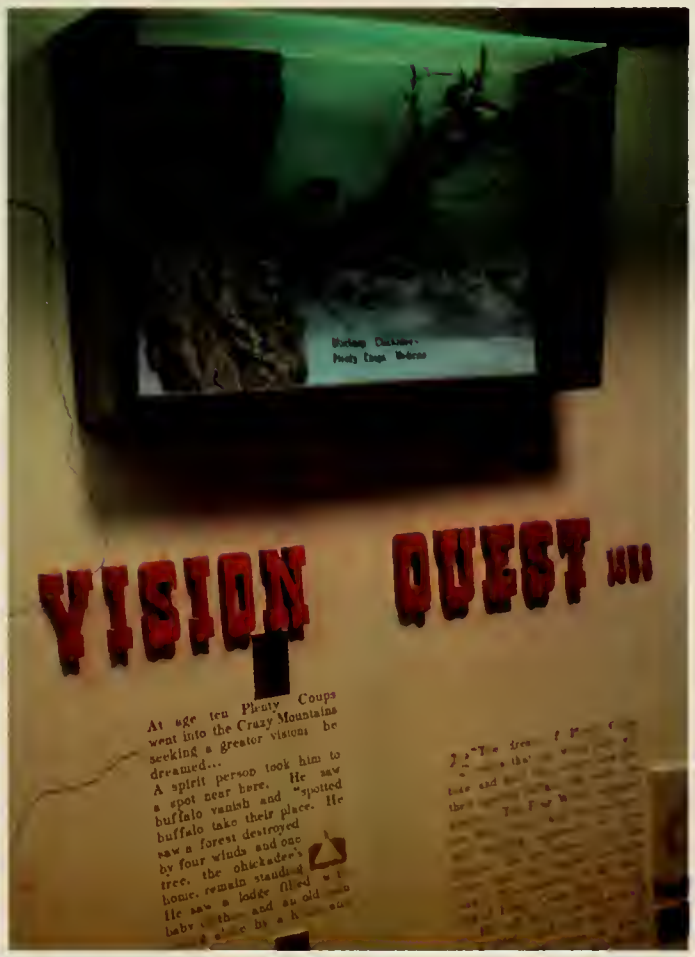
The Medicine Spring (above) near Plenty Coups' home remains a spiritual healing place for those who partake of its waters.

The Chief's log home and store have recently been stabilized, and some restoration work has been completed. As further restoration work is completed, visitors will someday be able to tour the interior of the Chief's house. Visitors can also view the Medicine Spring that inspired Plenty Coups to build his house there, and enjoy the peacefulness of Pryor Creek, the sandstone cliffs, and the nearby Pryor Mountains. The graves of Plenty Coups, Kills Together (his wife from 1893 until her death in 1923), and Strikes the Iron (his wife from 1924 until her death in 1931) may also be visited in the park.

The park's most important function is to serve as a place where Native American and non-Native American people can gather in friendship to learn respect for each other's cultures. Plenty Coups' vision of a peaceful coexistence is alive and well today at the park. In July of 1992, the park hosted a quincentennial celebration, which brought together students from many different cultures to exchange knowledge and learn about what America was

LEE GRAVES

Visitors to Plenty Coups State Park can tour Medicine Spring Museum (left), which houses numerous displays and artifacts (below left). The war bonnet and coup sticks shown below are on permanant display at Arlington National Cemetary in Washington, D.C.


VISION QUEST
At age ten Plenty Coups
went into the Crazy Mountains
seeking a greater vision he
dreamed...
A spirit person took him to
a spot near here. He saw
buffalo vanish and "spotted
buffalo take their place. He
saw a forest destroyed
by four winds and one
tree, the chickadee's
home, remain standing.
He saw a lodge filled
baby

DEIRDRE BOGGS

MT DEPT OF FISH, WILDLIFE & PARKS

COURTESY OF THE BILLINGS GAZETTE, LARRY MAYER PHOTO

COURTESY OF THE BILLINGS GAZETTE, LARRY MAYER PHOTO

Native American Awareness Week is observed on the Crow Reservation during the fourth full week in September. During this annual celebration school children in native dress parade from Plenty Coups State Park through the town of Pryor and back to the schools.

---

like before the arrival of Columbus in 1492.

More recently the park has hosted various cultural presentations. Each year during the last full week of September the park and the Pryor community celebrate Native American Awareness Week, with presentations by various Crow speakers and a parade of school children in native dress. Chief Plenty Coups' vision of advanced education for Crow people is also being continued at the park, with recent

agreements signed between the park and Plenty Coups High School to work on cooperative educational projects. One project currently underway involves presenting the exhibit texts in both Crow and English.

The Crow people's love for their land is exemplified by a traditional Crow saying:

Crow Country is a good country. The Great Spirit put it in exactly the right place; while you are in it, you fare well; whenever you go out of it, whichever way you travel, you fare worse...Everything good is to be found there. There is no country like Crow Country.

Thanks to the wisdom of Chief Plenty Coups, at least one small and beautiful part of Crow country is still available for everyone to experience and enjoy. ■

KEN ORAVSKY

Chief Plenty Coups' log home.

CHIEF PLENTY COUPS STATE PARK

• **LOCATION:** The park is located near the town of Pryor in Big Horn County, Montana. Visitors can get to the park from Interstate Highway 90 near Billings at exits 447 or 452, or from Crow Agency. See location map for routes to the park.

• **PARK SIZE:** 195 acres.

• **SEASON:** The park and museum are open from May 1 through September 30. Park hours are 8:00 a.m. to 8:00 p.m.; the museum is open from 9:00 a.m. to 5:00 p.m. Anyone wishing to visit the park beyond the regular season may contact the park manager at (406) 252-1289 to make arrangements.

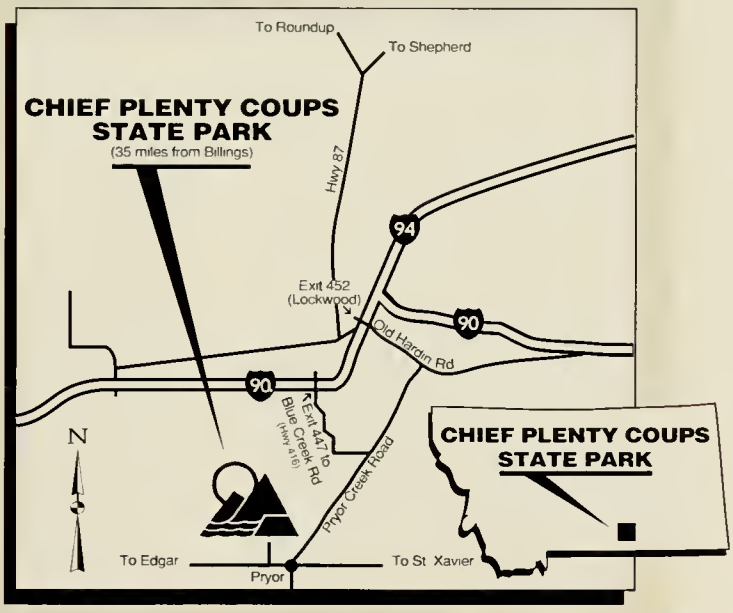
• **FEES:** The park entrance fee is $3 per vehicle. There is no additional charge to visit the museum.

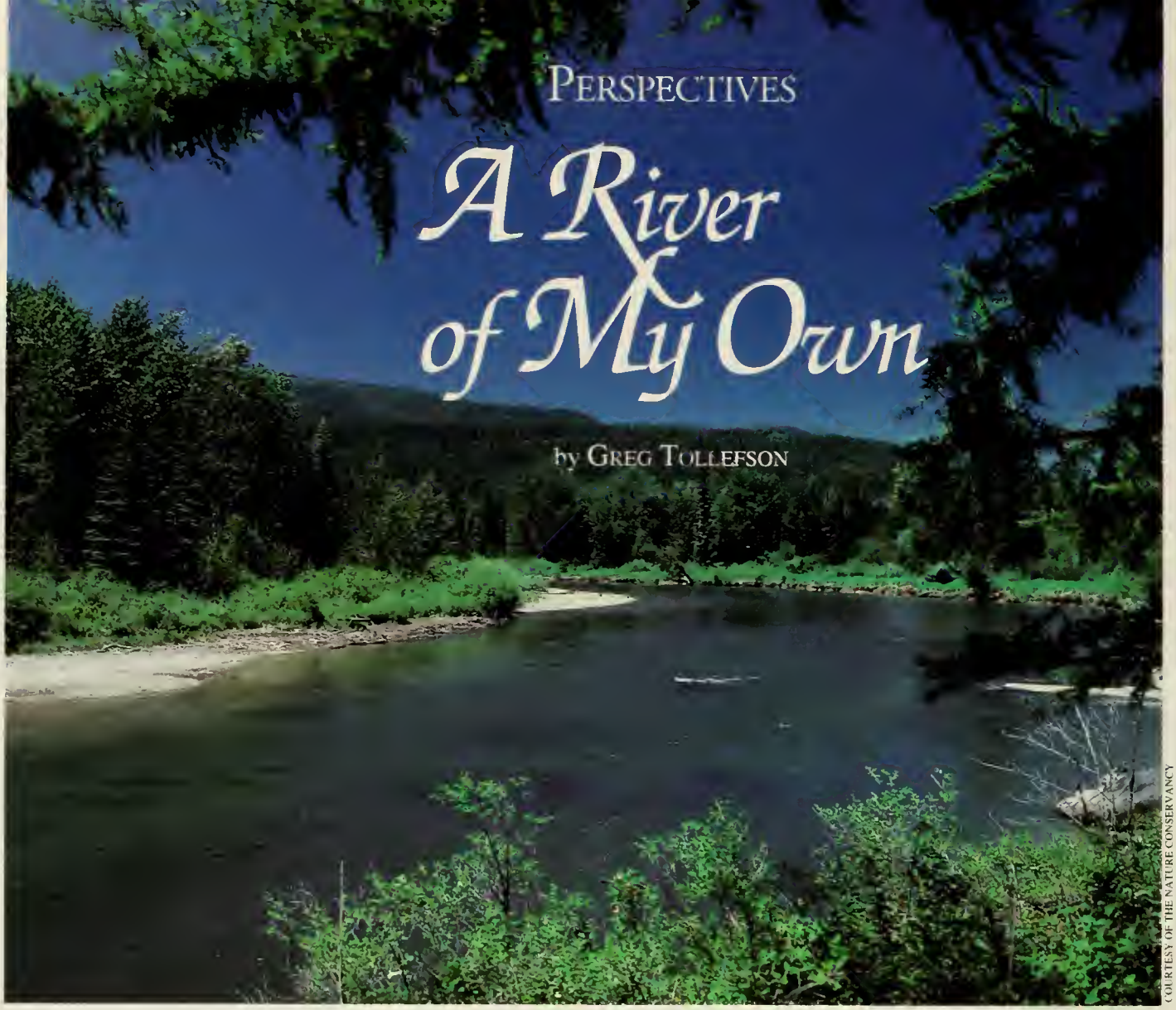
• **FACILITIES:** In addition to the historic structures and museum, the park contains picnic areas with tables and grills, and rest rooms. Historic structures include the Chief's log home and store, the Chief's grave site, the Medicine Spring, and various historic and interpretive markers.

• **GROUP USE:** Groups (educational groups in particular) are encouraged to visit the park. Fees can be waived for educational groups. All groups of more than 30 people must contact the park manager at least five days in advance to obtain a group permit and to ensure that interpretive staff will be available for the visit.

• **RESEARCH REQUESTS:** At this time, staff availability to assist researchers is very limited, and only a few requests can be granted. Please direct all research requests to the park manager.

• **CHIEF PLENTY COUPS ADVISORY COUNCIL:** This private, non-profit group works with park management to protect and improve the park, and to coordinate special events at the park. Annual dues are nominal. Visitors interested in joining should contact the park manager or any staff member.





PERSPECTIVES

A River of My Own

by GREG TOLLEFSON

COURTESY OF THE NATURE CONSERVANCY

"EVERY RIVER that flows is good, and has something worthy to be loved. But those that we love most are always the ones that we have known best—the stream that ran before our father's door, the current on which we ventured our first boat or cast our first fly, the brook on whose banks we picked the twinflower of first love."

So wrote Henry Van Dyke in his book *Little Rivers*. He wrote that back in 1895, but I suspect it holds true today, a hundred years down the line. It is probably a minor thing among the accidents of birth that plop us down helter-skelter at certain spots on the globe, to face a life that is, at first anyway, geographically preordained, that some of us should automatically be assigned the rivers that will flow through our souls for the rest of our lives. But, minor though it may be when measured against the crush of humanity on this planet, it is a matter of great good fortune to those lucky enough to have a river of their own.

To grow up in Montana is, of course, a stroke of good fortune for anyone. To get a river in the bargain is gravy. I was one of the lucky ones. My river is the Swan.

Now, the Swan is not one of those rivers you read about in the fishing magazines. It is not a river that people flock to because of its fabled trout fishing. In fact, it is a river that can be downright inhospitable to the casual visitor. The fishing these days is spotty, at best. Access can be difficult, not by dint of orange paint, but rather because the stream sprawls and winds its way down a valley bottom dense with lush vegetation and veined by springs, channels, and bogs that often make it an adventure just getting to the main river. Once there, it is sometimes difficult to wade because of the deep, ever-changing channels, and it can be dangerous to float, not because of challenging whitewater, but because of massive log jams, countless giant snags, and the tricky currents that flow through and around them. So it is a river that, for the most part, has been known and experienced by the people who have been able to hack out a sparse living here and there along its

sinuous course, and by the "summer people" who came to enjoy that place, once the snows and loneliness of the long winters had receded, only to leave again each fall. I am one of the latter.

The Swan has always been part of my life, and the lives of all in my family, because my grandfather saw something in the way the old birch trees crowded in near the head of Swan Lake that reminded him of the little valley in Norway's Telemark Province where he had begun his life. He decided that he would like to put a cabin in that place. Now, seventy-some years later, that lake, that river, and that valley provide a source of solace, refuge, and opportunity for a family that has otherwise been flung to the four winds. For me, it has always been the river, fishing the river, that best provided those things.

Fishing started out with a boat load of siblings and cousins under the calm eye of one of our parents as we vied to see who could lure the most perch and sunfish to the gobs of worms we dangled in front of them in the depths of the weed patch at the south end of the lake. Those who showed interest beyond that were taken on long, slow rides down the lake trailing hand-lines and glittery cowbells in hopes of luring a bull trout or salmon. The next stage was a trip up the river a ways with my grandparents, where, one by one, we were introduced to the business of catching trout on a fly rod. Each of us was always taken to the same bend, to fish the same pool. A great production was made of serving up that first fish to the lucky angler that night at dinner.

The rods we kids used were hand-me-downs and cast-offs that we found in battered metal and delaminating cardboard tubes in a dark corner of the garage, out behind the cabin. They were all three-piece bamboo affairs in varying states of disrepair, most frequently with broken tips or missing pieces. I know that none of us felt deprived because our rods were a little shorter than they were supposed to be, or because the various sections didn't necessarily match. To us, each of those rods was a work of art.

Our reels were black, metal automatics with a lever that brought the line whistling in whenever you pushed down on it. The lines were whatever was on the reel. Leader came off the spools we kept in our pockets. To keep those lines afloat, we gooped up with dressing from the tin in our grandfather's tackle box. For flies we used a sandy mite, lady mite, or royal coachman. For the longest time, I didn't know there was any other choice.

And from the beginning we caught trout on those rigs. The river was full of cutthroat, rainbow, and brook trout. Once in awhile, if we happened to be fishing real deep we would tie into a bull. There were always enough fish in the ice box for a family meal, with a couple left over for breakfast if anybody had a yen.

Before the apron strings were finally cut and we took off to explore the river on our own, we were cautiously introduced to the power and mystery of moving water by way of the extravaganzas we called "river trips." A river trip involved floating down the river in our tin rowboat from a spot seven or eight miles above the lake. When we reached the lake, we put on the old gasoline kicker that we had stashed in the weeds at the mouth of the river the night before, and motored home to the other side.

There were no bridges then, few roads, and not much access to the river from where we put in to where it dumped into the lake. We took all day at it, with my father at the oars and my brothers and I casting furiously at the banks as we slid along. My father wasn't much for spending all of his time watching us fish in those days, so at every nice run, tantalizing pool, or attractive sandbar, he would beach the boat and we would all pile out and fish every inch of fishable water.

Hip boots were considered unsafe in my family, especially for kids. It was assumed that one slip, the boots fill up, and whoever was in them was a goner. So we fished in jeans or shorts, depending on the weather, and tennis shoes. My father always wore his heavy wool hunting pants, even on the hottest days. For footwear he wore caulked-sole logging boots, which even today I think was a pretty good idea. Until we were well into our teens, we never got on that river without a life jacket. Our fishing vest was the back pocket of our pants or the band of the red felt hats we all usually wore, so the life jackets never got in the way anyway, and when you were trying to get across at an especially deep spot, it helped to be able to float when you couldn't touch bottom anymore.

At the big log jams we would unload the boat and plot a course to the next stretch of open water, over the logs or through the jungle of bankside brush, whichever looked easiest. Then we all joined in and horsed the boat along until the job was done. The log jams changed every year, so the best routes were never predictable until we were right there.

At lunch Dad would build a good fire and unwrap a greasy old skillet from the tarp he had stashed under one of the seats. We each selected a fish from the creel and he plopped them into the frying pan, now popping with sizzling butter. When they had curled up almost completely, and the skin was charred and falling off, he daintily dropped them onto the flat rock he had found for each of us to use as a plate. We ate them with our fingers.

When we motored up to the front of the cabin in the gathering dusk after a long day on the river, someone was always waiting outside to cheer our arrival and hear the tales of the day's adventures pouring out of us.

There are moments and places from each of those trips that have stayed with me like they happened yesterday. I can point out where we saw the big black bear standing upright on a beaver lodge, though the lodge is long gone. I know exactly where we spotted a mountain lion in an overhanging tree, just as we passed beneath it, though the tree, too, is long gone. The big grizzly tracks in the soft mud were in a back channel that I still fish in the years it holds water. Here is where the bull moose swam across in front of us, and there is where the garter snake wound its way up my calf while I was standing in shallow water, nearly scaring me to death.

I know exactly where my brother Sandy caught his biggest fish, back in 1958, and I know where Steve caught his in 1973. I can point to the place I was standing when my dad got so excited about the trout I was playing that he backed into a hole that was over his head, leaving only his hat floating on the surface. I lost that fish. I remember the spot where my dad first asked my older brother Val if he would like to row for a while, and I can show you the spot where I first took the oars some years later.

The sandbar where my mother would nap in the sun while everyone else fished is still there when the water drops in July, and the stretch of river sister Sally loved most is still long, slow, and shaded from the sun nearly all the way across.

I cannot pass the place where my dad caught his last trout, on a fly that I had tied on for him because his failing fingers couldn't manage it, without thinking about that day and thinking about those days so many years before when he had tied on flies for me, and been as excited when I caught a fish as if he had caught it himself.

That was all so long ago.

It is going on 20 years now since we had what I consider the last great day of fishing on the Swan River. The limit then was still "10 fish or 10 pounds and one fish," whichever came first. I was fishing with my friends Homer and Dave that day, and we made sure we took home a limit apiece. Our creels were so heavy on the long slog downstream to the car that warm August evening that it made our shoulders numb. We had released far more fish than we kept that day, always putting back the small ones and keeping the larger ones. The next year, fishing wasn't quite as good, and the year after that it seemed to be even worse. We speculated about the reasons, and waited for things to change, but for a long time, the only change was a continuing decline in the fishery. When the Department of Fish, Wildlife & Parks finally put "catch and release only" regulations in place on the Swan, most people had been unofficially practicing that very thing for years.

Fishing has changed drastically since those early days on the Swan. For one thing, the idea of "catch and release" has not only caught on among fly fishers, it is now generally the rule, rather than the exception, required or not. Bamboo rods, on the other hand, are the exception, and high-tech graphite is the rule. Many of the increasing number of folks dabbling in fly fishing have never even seen an automatic reel, much less used one. As for flies, you can't get by with a couple of lady mites or sandy mites in your pocket any more, it is now de rigueur to have a vest full of imitations designed to accommodate the most subtle differences in the lives of aquatic insects. And it is positively mind-boggling for someone who got along for years with only a pocket knife, to contemplate the array of gizmos and gadgets that now seem to be required for successful fishing.

Cane rods, automatic reels, and a tin boat made for a happy Tollefson family "river trip" in 1958.

I have been a willing participant in this change. My old, broken-tipped cane rods have long since been retired in favor of an arsenal of graphite. The automatic reels are collecting dust on a basement shelf. My fishing vest, filled with hundreds of flies in varying sizes and patterns, is festooned with snips, clamps, scissors, and other tools dangling from spring-loaded "zingers" pinned like medals to the pockets. There is a drift boat parked in my garage and on cool days, I wear a pair of neoprene waders to fish in.

In other ways, nothing has changed, and I hope it is the same for anyone who is lucky enough to have a river they call their own.

When I wade out into a familiar pool on the Swan, the promise of a fat trout rising from the depths to take the fly is always there, no matter how many times I have been left fishless lately. And with that promise comes the flood of memories the river has stored for me over the years. Over the noise of the river as it rushes against my legs, I sometimes think I can hear human voices and laughter, though I know I am the only one there. When a bright shape does rise from the darkness to the fly, there is that moment that is always the same when the heart seems to stop beating and time stands still.

One rainy day last spring, my then 6-year-old son caught his first bull trout as his mother slowly rowed us down the lake in the old tin boat. I was as excited as he was. This summer, I think that it will be time to try him out on the river. ■

HUMMINGBIRD LOVERS: BEWARE OF PERCH-HYPOTHERMIA

As a western Montana wildlife rehabilitator, I routinely get calls about injured birds, and have tended many hummingbirds that have been chewed by cats or dogs. In every case, the hummingbird has been found near a feeder with a perch. These birds have been rendered helpless by "perch-hypothermia," a condition brought on by cold morning temperatures and repeated feeding on cold nectar while remaining motionless on a perch for extended periods. Here's how it works.

The early morning air temperature during spring and summer in the Rocky Mountains is nearly always below 50° F. Sugar water in hummingbird feeders is approximately the same temperature. Early-feeding hummingbirds will sometimes remain on perches, taking occasional sips of sugar water, for as long as 25 minutes. The cold nectar can make these birds hypothermic, causing them to either fall to the ground or hang upside down from the perch. These birds seem to recover completely in a few minutes when warmed in a person's hands. Hummingbirds on the ground that aren't found by predators may also recover as the air temperature rises.

My husband, Bob, first observed this phenomenon in 1983 at our home near Stevensville. He had to rescue and warm as many as three birds each morning for the five or six days he watched the feeders. After removing perches from the feeders, he observed no more hypothermic birds (hummingbirds, incidentally, seem to have no trouble feeding on the wing).

According to Dr. William Calder of the Department of Ecology and Evolutionary Biology at the University of Arizona, "The heat produced by hovering, somewhere between five and ten times what is produced when perching, would offset the chilling effects of the cold sugar water." Dr. Calder went on to explain, "Feeders are unnatural. In perhaps most cases, they do no harm, but just as I get a bellyache from drinking too much cold juice too rapidly, the rate at which a hummer can take in sugar water, and the amount (crop volume), if the fluid is very cold, can cause a major temperature change in the bird's body."

Since we first publicized the problem of perch-hypothermia in 1988, other people in western Montana have reported finding hypothermic birds at their feeders. These birds are often resident birds with established territories, not migrating birds low on fat reserves. In some cases, it is the more aggressive male rufous hummingbird that first succumbs to hypothermia, since other hummingbirds do not disturb it. Rufous hummingbird numbers seem to be declining faster than those of other species, although local feeder watchers reported drastic declines for all species in 1993.

NEAL & MARY JANE MISHLER

Calliope hummingbird

Based on the information available at this time, we believe perches should be removed from feeders in western Montana and other places where cool morning temperatures may pose a danger to hummingbirds.—*Judy Hoy, Director, Bitterroot Audubon Wildlife Rehabilitation Center*

YOUNG BOAT OPERATORS NEED SAFETY CERTIFICATE

Boaters with youngsters should be aware of a new law in effect this year. The law states that all youths 13 or 14 years of age wanting to operate a motorboat (with a motor greater than 10 horsepower) without an adult on board must possess a motorboat operator's safety certificate. A certificate is not required if the 13- or 14-year-old is accompanied by an adult.

To obtain a Montana motorboat operator's safety certificate, a youngster must successfully complete an approved boating education course. The Department of Fish, Wildlife & Parks (FW&P) will issue a certificate to those who successfully complete such a course; this certificate must be carried on board while the youngster is operating the boat.

A home-study boating course is available at all FW&P regional offices. The U.S. Coast Guard Auxiliary also teaches approved courses and other courses may be approved on a case-by-case basis.

For more information, contact FW&P's Boating Education Coordinator, P.O. Box 200701, Helena MT 59620; telephone 406/444-2615.

JIM LIEBELT

Roger Hunsley displays his state record sauger.

Sauger Sagas and Trout Tales

IS THERE A WORLD RECORD SAUGER in Fort Peck Reservoir? "Yes, there is," says Jim Liebelt, FW&P information officer for Region Six (Glasgow). "During spring trapping operations last year to collect walleye for spawning, several sauger weighing over nine pounds were captured and released. Since cisco were introduced to the reservoir in 1984 to improve the forage base, fishermen have been taking some dandy sauger, walleye, and smallmouth bass."

Record-caliber sauger and smallmouth bass, to be exact. In 1990, Terry Druyvestein caught a state record smallmouth in Fort Peck weighing a little better than 6 pounds. In 1992, Don Gay took a record-setting sauger that tipped the scales at 7.81 pounds. Then in 1993, **Roger Hunsley** of Wolf Point bested Gay's record with a sauger weighing 8.28 pounds. Hunsley caught his record fish while trolling a Spin-N-Glo with a nightcrawler.

How far off the world mark was Hunsley's fish? Not far. The current world record sauger of 8.75 pounds hails from North Dakota's Lake Sakakawea, a Missouri River reservoir only 100 miles or so downstream from Fort Peck. "With state record sauger coming out of Fort Peck two years in a row," says Liebelt, "it sure makes you wonder if and when someone is going to be lucky enough to set a new world record."

They say lightning never strikes twice in the same spot, but record golden trout keep striking in Lightning Lake, a deep alpine lake in the Absaroka-Beartooth mountains. Since John Hailstone caught a 3.58-pound golden there in 1987, the record has been broken three more times—in 1988 by Jack Robertson, with a fish a little over 4 pounds; in 1989 by Tom McGillvray, with a 4.5-pounder; and again last year by **Carl Radonski** of Billings, with a trout weighing 4.90 pounds. These fish all came from Lightning Lake.

How big do golden trout get? An 11-pound fish taken in Wyoming in 1948 still stands as the world record. With the Montana record at less than half that size, perhaps one wouldn't expect a world record to come out of Big Sky waters...yet, in a July/August 1980 *Montana Outdoors* article, fisheries biologist Pat Marcuson made this interesting observation: "During trapping activities in a lake in the Beartooth Range, one very large female was handled in 1975. Unfortunately, no official weight was recorded, but the fish exceeded 10 pounds and measured 26 inches." Was this big fish observed at Lightning Lake? Marcuson didn't say. But with golden trout, at least, lightning seems to strike regularly there.

Three additional fish records fell in 1993: **Van Barron** of Havre took a 53.50-pound bigmouth buffalo from Nelson Reservoir, besting the previous record of 45.00 pounds from the same water; Pablo resident **Kevin Zimmer's** black bullhead from Ninepipe Reservoir weighed in at 1.95 pounds, breaking a record that had stood since 1977; and **William Burdge's** 18.64-pound tiger muskellunge from Lebo Lake shattered the previous record of 11.88 pounds taken from H.C. Kuhr Reservoir in 1992. We added the tiger muskellunge—a cross between the muskellunge and northern pike—to our records list in 1990, and it has been broken every year since.

What do you do if you think you've caught a record fish? First, you must catch the fish legally. Second, you must weigh your fish before witnesses on a government-inspected scale such as those found in most grocery stores. Weighing it as soon as possible is a good idea, since fish rapidly lose the precious ounces that can spell the difference between a record and a runner-up. Third, a Department of Fish, Wildlife & Parks employee must positively identify the fish. It's also a good idea to take color photographs of the fish to help resolve any identification problems.

Who knows? This may be the year you spin a sauger saga or trout tale of your own.—***Dave Books***

Montana's Record-Setting Fish (1993)

Species	Weight	Angler	Year	Location
Arctic grayling	2.66 lbs.	Steve Houser	1986	Hyalite Reservoir
Bigmouth buffalo*	**53.50 lbs.**	**Van Barron**	**1993**	**Nelson Reservoir**
Black bullhead*	**1.95 lbs.**	**Kevin Zimmer**	**1993**	**Ninepipe Reservoir**
Black crappie	3.13 lbs.	Al Elser	1973	Tongue River Reservoir
Blue sucker	11.46 lbs.	Doug Askin	1989	Yellowstone River (near Miles City)
Bluegill	2.64 lbs.	Brent Fladmo	1983	Peterson's Stock Dam
Brook trout	9.06 lbs.	John R. Cook	1940	Lower Two Medicine Lake
Brown trout	29.00 lbs.	E.H. "Peck" Bacon	1966	Wade Lake
Bull trout	25.63 lbs.	James Hyer	1916	unknown
Burbot (ling)	17.08 lbs.	Jeff E. Iwen	1989	Missouri River (near Wolf Point)
Carp	38.50 lbs.	Don Bagley	1986	Eyraud Lakes
Channel catfish	25.89 lbs.	Gordon Wentworth	1984	Fort Peck Reservoir
		Tom Hilderman (tie)	1988	Fort Peck Reservoir
Chinook (king salmon)	31.13 lbs.	Carl L. Niles	1991	Fort Peck Reservoir
Cisco	1.46 lbs.	Jim Liebelt	1990	Dredge Cut Trout Pond
Coho salmon	4.88 lbs.	Irven Stohl	1973	Fort Peck Reservoir
Cutthroat trout	16.00 lbs.	William D. Sands	1955	Red Eagle Lake
Freshwater drum	20.44 lbs.	Richord C. Lee	1987	Fort Peck Reservoir
Golden trout*	**4.90 lbs.**	**Carl Radonski**	**1993**	**Lightning Lake**
Goldeye	2.91 lbs.	Vance "Bubba" Kielb	1989	Irrigation canal (west of Malta)
Green sunfish	0.56 lbs.	Roger Fliger	1991	Castle Rock Reservoir
Kokanee (salmon)	5.94 lbs.	Forrest Johnson	1976	Pishkun Reservoir
Lake trout	42.00 lbs.	Dave Larson	1979	Flathead Lake (east shore)
Lake whitefish	10.00 lbs.	Ruby Mutch	1986	Lower St. Mary Lake
Largemouth bass	8.16 lbs.	Juanita A. Fanning	1984	Milnor Lake
Longnose sucker	3.27 lbs.	Ray Quigley	1988	Marias River
Mountain whitefish	5.09 lbs.	Mervin "Frog" Fenimore	1987	Kootenai River
Northern pike	37.50 lbs.	Lance Moyler	1972	Tongue River Reservoir
Northern squawfish	7.88 lbs.	Darrel Torgrimson	1991	Noxon Rapids Reservoir
Paddlefish	142.50 lbs.	Larry Branstetter	1973	Missouri River
Peamouth	0.64 lbs.	Gordon Stewart	1991	Ashley Creek
Pumpkinseed	0.95 lbs.	Tim Colver	1985	Milnor Lake
Pygmy whitefish	0.16 lbs.	Orlin Iverson	1982	Ashley Lake
Rainbow trout	29.02 lbs.	Stanley Ross	1991	Kootenai River (David Thompson Bridge)
Rainbow-cutthroat hybrid	30.25 lbs.	Pat Kelly	1982	Ashley Lake
River carpsucker	3.50 lbs.	James Jessen	1991	Yellowstone River near Terry
Rock bass	0.57 lbs.	Don Holzheimer	1989	Tongue River Reservoir
Sauger*	**8.28 lbs.**	**Roger Hunsley**	**1993**	**Fort Peck Reservoir**
Shorthead redhorse sucker	4.68 lbs.	Ray Quigley	1985	Marias River near Loma
Shortnose gar	3.06 lbs.	John Johnson	1977	Fort Peck dredge cuts
Shovelnose sturgeon	13.72 lbs.	Sidney L. Storm	1986	Missouri River
Smallmouth bass	6.09 lbs.	Terry L. Druyvestein	1990	Fort Peck Reservoir
Smallmouth buffalo	10.25 lbs.	Ron Skirvin	1989	Fort Peck dredge cuts
Stonecat	0.42 lbs.	Robert M. Garwood	1985	Milk River at Havre
Tiger muskellunge*	**18.64 lbs.**	**William Burdge**	**1993**	**Lebo Lake**
Utah chub	1.81 lbs.	Eugene Bastian	1992	Conyon Ferry Reservoir
Walleye	14.88 lbs.	Duane A. Leidholt	1989	Yellowstone River (near Miles City)
White bass	1.13 lbs.	Ludwig Dubbe	1986	Fort Peck dredge cuts
White crappie	2.38 lbs.	Greg Johnston	1990	Tongue River Reservoir
White sturgeon	96.00 lbs.	Herb Stout	1968	Kootenai River
White sucker	5.33 lbs.	Fred Perry	1983	Nelson Reservoir
Yellow bullhead	0.72 lbs.	Wade Fredenberg	1987	Yellowstone River
Yellow perch	2.37 lbs.	Vernon Schmid	1988	Ashley Lake

***New Montana record for 1993**

by John Fraley
Region One Information Officer
Conservation Education Division

Ask anyone who's spent years hiking in the backcountry how many wolverine, or lynx, or fisher, or even marten they've seen. The answer will be few or none. So how do FW&P biologists conduct surveys for these furbearers over large areas of Montana quickly and effectively?

Active mainly at night, wild mammals leave their signature in the snow. Biologists act as trackers during winter months, and play detective to find the who, what, where, when, and how of animal movements.

How do biologists become skilled in the art of tracking? Practice is the key, according to expert James Halfpenny, author of *A Field Guide to Mammal Tracking in North America.*

"Telling someone how to track is like telling someone how to play the piano," he writes. "I might tell you everything about how to play, but to become a concert pianist you would have to sit down and practice. The same is true of tracking."

Halfpenny recommends focusing on a series of clues when trying to identify a mammal by its sign. "First, you must develop a search image," he writes. "With experience you'll be able to look at the ground and see things others miss." He lists the key clues: geographic location, ground surface, track size, formula, gait, pattern, scat (droppings), natural history of the animals you're likely to encounter, and things like gnawed branches or hair.

When biologists combine these clues with a willingness to think like a wild mammal they make the best educated guess possible and, according to Halfpenny, will be right most of the time.

FW&P's furbearer coordinator Brian Giddings has put these techniques to use across Montana to develop one of the country's best data bases on these elusive furbearers.

"We're interested in knowing how lynx, for example, are currently distributed across the state. We also want a rough idea of how many lynx we have."

Giddings refers to solitary animals like lynx, wolverine, and fisher as "naturally low-density carnivores." He points out that Montana may have the best populations of these animals in the lower 48 states, and that documenting their abundance and distribution is a top priority to maintain the state's ability to manage these species for both consumptive and nonconsumptive uses. He believes that numbers of these animals may not be much different now than in the past in remote areas like the Bob Marshall Wilderness Complex. Thus, surveys in backcountry areas can provide a snapshot of the animals in a natural condition.

JOHN FRALEY

The 1994 furbearer survey crew, pictured left to right: Brian Giddings, John Waller, Rick Mace, and Mennow Troyer.

Surveys in the Great Bear portion of the Bob Marshall Wilderness Complex during the winters of 1993 and 1994 yielded valuable information on these species and other more common furbearers. In 1994, Giddings was accompanied on the survey by FW&P biologists Rick Mace and John Waller, and U.S. Forest Service backcountry expert Mennow Troyer. I was granted passage because of my knowledge of the country and because I begged. FW&P helicopter pilot extraordinaire Doug Getz ferried us into the U.S. Forest Service administrative guard station at Schafer Meadows, near the center of the Great Bear portion of the Bob Marshall Wilderness Complex. We skied about 35 miles of route one-way using the guard station as a base of operations.

Marten proved to be surprisingly abundant. We documented 1.0 to 1.5 marten for each mile of ski route. Considering the "snapshot" nature of a ski route survey, this shows a very strong marten population. Weasels were also common. And prey animals like snowshoe hare were found in densities of up to 12 per mile of route in some drainages; that means lots of food for the carnivores.

The hermit-like wolverine, perhaps the most solitary animal anywhere and the largest land member of the weasel family, leaves a robust track. Although not common, they were noted both years. Wolverines have the reputation of being vicious predators, but they are actually scavengers that travel long distances each day searching for food. They can detect carrion under two feet of snow and their powerful jaws can crush the thigh bone on a moose carcass. Montana is the only state where the wolverine population is sufficient to support a trapping season. Says Giddings: "Wolverines just walk around until they smell something to eat. That's their life."

The fisher, which has the appearance of a large, dark marten, is the least "nocturnal" of the furbearers. In the Schafer Creek Drainage, we found a fisher trail that probably was less than an hour old in fresh snow late in the day. This particular fisher must not have studied texts on its natural history. The maximum fisher leap is listed as

five feet; we measured this fisher's leap across the trail at nearly six feet.

The "puff" made by the snowshoe-like, fur-covered foot of the lynx is distinctive. Lynx were noted in several drainages in the Great Bear survey area. Giddings estimates that there may be as many as 800 to 1,000 lynx in Montana, and adds that they are most common in the northwestern part of the state. Trackers found a few bobcat tracks in the survey area, but elevations in most of the survey area were above those considered to be typical winter bobcat habitat.

In the 1993 survey, a dead elk along the Middle Fork of the Flathead River attracted a lot of attention. According to our "read" of the story in the snow, a mountain lion killed the elk, then a wolf (tracks as big as my hand) claimed the elk carcass. A wolverine also claimed part ownership. It seems that natural history in the backcountry could be described as a continual series of animals killing and eating each other.

In the Dolly Varden Creek Drainage, Giddings and biologist John Waller watched a struggle between two backcountry munchkins.

"First, we saw a flash at the base of a big spruce tree, and out flew a northern-pygmy owl," said Waller. "It perched briefly in a tree about 30 yards away, then took off and dove like a missile back underneath the spruce. After struggling for about 15 seconds, the owl emerged with a red-backed vole secured in its talons."

In winter backcountry surveys, weather is unpredictable and must simply be reckoned with. This year, a storm blew in one day, adding more than a foot of snow and making skiing and tracking conditions less than ideal. The skies cleared and temperatures dropped to 18 degrees below zero. We skied a nine-mile route to the Scott Lake area in brilliant sunshine, but breaking trail was like walking through a vat of mashed potatoes with boards fastened to your feet.

On our way back along the route, the sun set as we crossed the frozen Middle Fork, five miles short of the guard station. A "snowbow," a rectangular prism of colors resembling a rainbow, hovered above Wildrose Mountain in windblown snow and ice crystals.

As we skied the last four miles, the brilliant light from a full moon lit the trail through tall lodgepole; the marks left by our ski poles caught the moonlight and shined like lamps placed evenly along the linear marks of our ski tracks. It was the kind of day that every field biologist treasures.

Giddings may expand the backcountry survey in the Bob Marshall Wilderness Complex to document the presence of low-density carnivores like lynx and wolverine in other drainages, while maintaining several established routes in the Schafer Meadows area to document trends for the more common furbearers like marten and snowshoe hare. This information, combined with data from extensive snowmobile survey routes on national forest land throughout western Montana and observations from trappers' and houndsmen's logs, will help form a picture of distribution and abundance of furbearers across the state.

Giddings points out that the surveys are supported by sale of trapping licenses, and that the data are valuable for setting seasons as well as for increasing our knowledge of furbearer biology. "There's no substitute for good information about these animals if we want to manage them effectively," he says. "Montanans are very interested in species like the fisher, wolverine, and lynx; it's part of our heritage, part of what makes Montana unique."

And I may have to beg a little harder, but I plan on being part of next year's survey too. They need me. Really they do. ■

Watch For...

a tribute to neotropical migratory landbirds in a special, 16-page feature in the July/August issue. Hummingbirds, warblers, kingfishers, bluebirds, even ospreys and vultures, fall under the name "neotropical migrants," a term referring to an ancient cycle of flying south each winter to Mexico and beyond, then returning to nest, raise young, and fly south again. Some 144 species of birds in Montana live in two worlds.

Next issue's feature takes an up-close look at Montana's tiny travelers: the places they live, the hazards they face, and the search for understanding leading to conservation. You'll find ideas on backyard landscaping, tips on birdwatching, and other ways to become part of a conservation success story for these tough, yet fragile fliers.

The article is part of a larger effort to conserve migratory birds by "Partners in Flight—Aves de las Americas," an initiative to conserve neotropical migratory birds and their habitats that spans agencies and conservation groups across the Americas. The Northern Region of the U.S. Forest Service is a partner with Montana Fish, Wildlife & Parks in publishing next issue's Watchable Wildlife feature.—Deborah Richie, Watchable Wildlife Coordinator, The Nature Conservancy and U.S. Forest Service

MORE FISHING FEATURES, PLEASE

I caught my first trout on Upper Belt Creek at the ripe old age of 23. It was magical. The same elk hair caddis, nearly tattered, produced a brook, a rainbow, and a native from the same pool. That evening started a chain of experiences, that quite frankly, transformed me into a passionate fly fisherman. For the next five years I labored lovingly on the Missouri, the Sun and Smith Rivers, as well as in the Yellowstone area, and all with mixed results. But still my longing for Montana's streams burned in my heart.

In 1990, my career required me to move to Colorado. Although I have found quality (and crowded) fishing conditions on the South Platte River, and a legendary spring caddis hatch on the Arkansas, my dreams are full of Montana. Due to limited time and resources (and lots of kids), I have been unable to return often enough to fish the waters I knew so well. Therefore, I rely heavily on your publication to fill the void. But sadly I have noticed a great decrease in the number of articles and stories about fly fishing for trout in Montana. "Bel-Air on the Big Hole" (September/October 1993) was great; let's see more like it. I remember your two or three part series on fishing the larger rivers and streams during the early eighties; how about a 10-year update!?!

I would make an educated guess that most of your readers fish for trout, either in Montana or other Western states. You owe it to us year round (not just spring and summer) to deliver a piece of the pie we all love to savor...casting to trout "knee deep in Montana's streams." Especially in the thick of winter, when sitting by a warm fire, a trout story is much more welcomed than the eating habits of the bushy-tailed woodrat. Out of seven or eight features per issue, one could be a heart-warming short story, and another a factual article about a popular hatch, fishing conditions on a particular water, or an entire region (like the "Bob," Paradise Valley, or the Blackfeet Indian Reservation). The wildlife articles are nice, but they shouldn't dominate your publication. Your conservation stories are essential, and should complement outdoor recreation, not discourage it. Your photo issues are beautiful, but it wouldn't hurt to show a thick native being released from the net, or an elderly fly fisherman struggling to tie on a size 20 Brassie on one of our (oops, I mean *your*) gentle spring creeks. Besides, don't you want to lure me and my out-of-state brethren back to your beautiful state?

Please help me look forward to receiving your magazine in the mail by giving me (and many others) something more to look forward to. Thanks for listening.—*Gary Rafferty, Colorado Springs, Colorado*

•*We have some fly fishing stories planned for upcoming issues that we hope you'll enjoy—and, yes, we do want you to revisit Montana's trout waters.*—Editor

MORE ON KOOTENAI FALLS SHEEP HERD

I am a native of Montana now living in Manhattan. Your magazine provides me with an important touch with my youth and growing up in Troy, Montana.

I, like Janeth L. Hilmes, of Othello, Washington, enjoyed your article on the Kootenai Falls Wildlife Management Area (September/October 1993).

Ms. Hilmes is correct. There was an earlier bighorn sheep transplant program in the rocky cliffs above Kootenai Falls. I recall riding in our gray Plymouth with my father and mother on the old winding No. 2 highway between Troy and Libby in the 1950s. We often stopped to view the bighorn sheep from across the river above Kootenai Falls. I remember my father discussing that the bighorn sheep were not native to that particular area. He had mentioned that the Forest Service was experimenting with the transplant program to encourage development of the species in our region. As a young boy, I was not only intrigued but also especially sensitive to the fact that the sheep had been trapped and moved to the rough, rocky cliffs without food to eat and a long, steep climb to the bottom for drinking water. My father, Roy Maness, tried to assure me that not only were the rocks their natural habitat but that previously in the 1930s or 40s, a similar transplant program had been attempted but was not successful. This awareness of that failure did not provide me with great comfort and I was keenly aware that their survival was uncertain. But, the many moons since those days and the times when I am able to return to Troy, I enjoy confirmation of the wisdom and foresight of our fathers. To my delight, occasionally on those same rocky cliffs above Kootenai Falls, even transplants to Manhattan can spot small herds of bighorn sheep and appreciate that they are feeding.—*George L. Maness, New York, New York*

READER WONDERS ABOUT PENALTIES

I just finished reading the article about game wardens (March/April 1994) and would like to make a few comments. In reference to the Arkansas hunters who were fined; what about the "rogue guide"? Was he investigated? Was he fined? He should have been fined the same as the hunters!!

I like Montana and I will continue to hunt there, but your bias towards us nonresidents is blatantly open. If it wasn't for us paying your overpriced license fees, you guys wouldn't even have a job.—*Gary W. Sutherland, Brodhead, Wisconsin*

•*According to Warden Randy Wuertz, the rogue guide who led the Arkansas hunters and then abandoned them received penalties similar to those received by the hunters. He was cited, convicted, and fined $1,500, and he gave up his outfitter's license.*—Editor

CONTRIBUTORS

Flath

"Among rabbits and hares, predation is a major fact of life," says **DENNIS FLATH**, in this issue's "Watchable Wildlife" segment. "The list of predators that take them reads like a 'Who's Who' of species that eat meat." Flath goes on to explain that Montana has eight species of rabbits or hares, of which only four can properly be called "rabbits": the eastern cottontail, desert cottontail, mountain cottontail, and pygmy rabbit. To learn more about these prolific mammals and their role in the food chain, turn to "Bunnies by the Bunch" on page 8. The department's nongame coordinator, Flath is stationed at the Region Three headquarters in Bozeman.

In "More Adventures of a Travelin' Fish"—a sequel to an earlier article—**JOHN FRALEY** explores past and present attitudes about bull trout and describes the activities underway to protect and restore them (page 14). Feelings toward bull trout have changed over time, says Fraley. The June 1926 issue of *MontanaWildlife* referred to them as "the cannibal of Montana's streams" and encouraged sportsmen to declare war on them. But 30 years later George Weisel, a professor at the University of Montana, warned of widespread bull trout decline and possible extinction. The reasons for the decline are complex, says Fraley, but they include stream sedimentation, dewatering, loss of habitat diversity, dams or culverts blocking access to spawning areas, hybridization with brook trout, and poaching. A bull trout restoration plan, drafted by an interagency group of fisheries biologists and endorsed by Governor Marc Racicot, may provide the key to recovery for this unique native species. Fraley is the department's information officer for Region One in Kalispell. A certified fisheries scientist, he has worked with bull trout and their habitats for 15 years.

Chief Plenty Coups State Park in south-central Montana is the subject of this issue's "Lands Legacy" installment, and it truly is "A Park for All People" (page 22). According to authors **KEN ORAVSKY** and **RICH PITTSLEY**, "Visitors from all states and provinces, as well as from all over the world, visit the Chief's park each year." The last head chief of the Crow Tribe, Plenty Coups was often referred to as the "Chief of Chiefs" for his efforts to preserve his culture through cooperation rather than conflict. Attractions at the park include a picnic area, a sacred spring, and a museum where visitors can learn about Crow culture from Lawrence Flat Lip, a museum interpreter and fifth-generation blood relative of Chief Plenty Coups. Oravsky is the park operations supervisor for Region Five (Billings), and Pittsley is the manager of Pictograph Cave and Chief Plenty Coups state parks.

Oravsky

Pittsley

"To grow up in Montana is, of course, a stroke of good fortune for anyone. To get a river in the bargain is gravy. I was one of the lucky ones. My river is the Swan." So writes **GREG TOLLEFSON** in his thoughtful essay on time, family, and "A River of My Own" (page 28). "The Swan," says Tollefson, "has always been part of my life, and the lives of all in my family, because my grandfather saw something in the way the old birch trees crowded in near the head of Swan Lake that reminded him of the little valley in Norway's Telemark Province where he had begun his life. He decided that he would like to put a cabin in that place. Now, seventy-some years later, that lake, that river, and that valley provide a source of solace, refuge, and opportunity for a family that has otherwise been flung to the four winds." Tollefson, who claims to be "a retired fishing guide and full-time homemaker," writes a weekly outdoor column for the *Missoulian*. He also serves as chairman of the Rock Creek Advisory Council and as a member of the State Council of Trout Unlimited and Montana's Environmental Quality Council.

Tollefson

MO thanks the following photographers for their contributions to this issue: **ROBERT E. BARBER**, Arvada, Colorado; **MICHAEL J. BARLOW**, Three Forks; **ERWIN & PEGGY BAUER** and **BEN O. WILLIAMS**, Livingston; **DEIRDRE BOGGS**, Hamilton; **MICHAEL H. FRANCIS** and **LARRY MAYER**, Billings; **JOHN R. FORD**, Land O' Lakes, Wisconsin; **LEE GRAVES**, **JOHN LAMBING**, and **TRAVIS SMITH**, Helena; **NEAL & MARY JANE MISHLER**, Great Falls; **BARBARA THOMAS** and **JAN L. WASSINK**, Kalispell; **RICHARD MOUSEL**, Fort Benton; and **TOM J. ULRICH**, West Glacier. Thanks also to the following contributors who work for the department: **MIKE ADERHOLD**, Great Falls; **DENNIS FLATH**, Bozeman; **JOHN FRALEY**, Kalispell; **JIM LIEBELT**, Glasgow; and **KEN ORAVSKY**, Billings.